UNH LIBRARY
3 4600 01598 0649

BULLETIN OF THE
UNIVERSITY OF NEW HAMPSHIRE

CATALOG

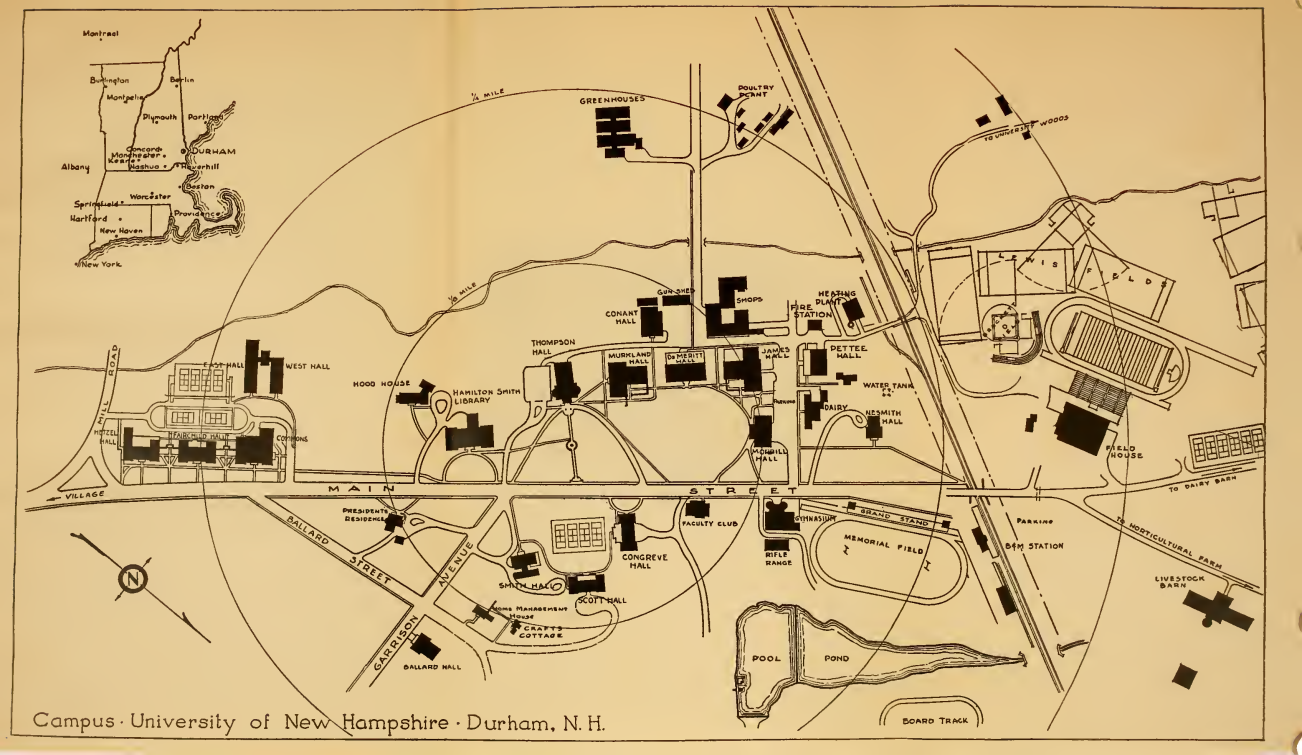
1939-1940

Eng
LD
3779
.N4
U5
1939/1940

RHAM, NEW HAMPSHIRE

University of
New Hampshire
Library

Dean's Office
College of Technology



Campus · University of New Hampshire · Durham, N. H.

Durham, the home of the university, is an attractive village on the Portland division of the Boston and Maine railroad, sixty-two miles from Boston, fifty-four from Portland, and five from Dover, a city of 15,000 population. Good train service and excellent trunk-line motor roads make the university easily accessible from all parts of the state.

Durham, organized in 1732, is one of the historic towns of New Hampshire. In the early days it was the home of a prosperous ship-building industry. Situated at the head of tidewater on the Oyster river, it served as a distributing center for the interior of the state. During the Revolutionary war it was famous as the home of Major General John Sullivan. Near his home, in the village, the state has erected a fitting monument to his memory.

The University of New Hampshire and the New Hampshire College of Agriculture and the Mechanic Arts

DURHAM, NEW HAMPSHIRE

VOL. XXX FEBRUARY, 1939 NO. 6

Published in September, October, November, December, January, February, March, and April by the University of New Hampshire, Durham, N. H.

BULLETIN *of the* UNIVERSITY *of* NEW HAMPSHIRE

Entered as second class matter, August 5, 1907, at the post office at Durham, N. H., under the Act of Congress of July 16, 1894

THE UNIVERSITY BULLETIN INCLUDES:

The Catalog of the University
The Report of the President
The Financial Report
The Catalog of the Summer School
The Pictorial Folder
The Catalog of the Graduate School

and other publications of the University

Save this catalog and bring it with you. It will be needed for reference throughout the year

Correspondence regarding the university should be addressed to the following:

General Information, E. Y. BLEWETT, Assistant to the President.

Admission, GEORGE N. BAUER, chairman of the Committee on Admission.

Catalog, OREN V. HENDERSON, Registrar.

General Extension, J. C. KENDALL, Director.

CALENDAR

1939

JULY

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

AUGUST

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

SEPTEMBER

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

OCTOBER

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

NOVEMBER

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

DECEMBER

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

1940

JANUARY

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

FEBRUARY

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29		

MARCH

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

APRIL

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

MAY

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

JUNE

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

JULY

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

AUGUST

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

SEPTEMBER

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

OCTOBER

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

NOVEMBER

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

DECEMBER

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

1941

JANUARY

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

FEBRUARY

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	

MARCH

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

APRIL

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

MAY

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

JUNE

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

UNIVERSITY CALENDAR

1939–40

SUMMER SESSION

1939

June 26	Monday	Registration Day
June 27	Tuesday	Classes begin at 7:30 A.M.
Aug. 4	Friday	Summer Session closes at 4 P.M.

FIRST SEMESTER

1939

Sept. 19	Tuesday	Matriculation Day—Freshman Class
Sept. 25	Monday	Registration Day—Upper Classes
Sept. 26	Tuesday	Recitations begin at 8 A.M.
Sept. 28	Thursday	University Day—Afternoon holiday
Oct. 4	Wednesday	Meeting of University Senate at 4:15 P.M.
Oct. 20	Friday	Annual Meeting of Board of Trustees
Oct. 28	Saturday	Dads' Day
Nov. 11	Saturday	Homecoming Day
Nov. 16	Thursday	Mid-Semester reports to be filed, 5 P.M.
Nov. 29	Wednesday	Thanksgiving Recess—Wed., 12:30 P.M. to Mon., 8 A.M.
Dec. 16	Saturday	Christmas Recess begins at 12:30 P.M.

1940

Jan. 2	Tuesday	Christmas Recess ends at 8 A.M.
Jan. 19	Friday	Meeting of Board of Trustees
Jan. 23–Feb. 2	Tues.–Fri.	First Semester examinations

SECOND SEMESTER

Feb. 5	Monday	Registration Day—All Classes
Feb. 6	Tuesday	Recitations begin at 8 A.M.
Feb.	Friday	Winter Carnival, Fri., 12:30 P.M., to Sat., 12:30 P.M.
Feb. 14	Wednesday	Meeting of University Senate at 4:15 P.M.
Mar. 30	Saturday	Spring Recess begins at 12:30 P.M.
Apr. 8	Monday	Spring Recess ends at 8 A.M.
Apr. 18	Thursday	Mid-Semester reports to be filed, 5 P.M.
Apr. 19	Friday	Meeting of Board of Trustees
May 18	Saturday	Mothers' Day
May 30	Thursday	Memorial Day—Holiday
June 3–13	Mon.–Thurs.	Second Semester examinations
June 14	Friday	Meeting of University Senate at 4:15 P.M.
June 15	Saturday	Alumni Day—Meeting of Board of Trustees
June 16	Sunday	Baccalaureate Exercises
June 17	Monday	Class Day Exercises at 10:00 A.M. Commencement at 2:00 P.M.

SUMMER SESSION

1940

July 1	Monday	Registration Day
July 2	Tuesday	Classes begin at 7:30 A.M.
Aug. 9	Friday	Summer Session closes at 4 P.M.

BOARD OF TRUSTEES

His Excellency, Governor Francis P. Murphy, A.M., LL.D., *ex officio*

President Fred Engelhardt, A.M., PH.D., *ex officio*

Andrew L. Felker, *Commissioner of Agriculture, ex officio*

Roy D. Hunter, LL.D., *President* — West Claremont
June 14, 1916 to June 30, 1941

Harry D. Sawyer — Woodstock
September 15, 1926 to June 30, 1942

James A. Wellman, B.S. — Manchester
January 26, 1928 to June 30, 1939

Robert T. Kingsbury — Keene
January 27, 1928 to June 30, 1940

George T. Hughes, A.M., LL.D. — Dover
July 1, 1931 to June 30, 1939

*John S. Elliott, B.S., *Secretary* — Madbury
July 1, 1932 to June 30, 1940

Jessie Doe — Rollinsford
July 1, 1932 to June 30, 1942

John T. Dallas, A.B., D.D., LL.D. — Concord
July 1, 1933 to June 30, 1941

Frank W. Randall, B.S. — Portsmouth
July 1, 1936 to June 30, 1940

*Rohl C. Wiggin, B.A. — Newton Centre, Massachusetts
January 21, 1938 to June 30, 1939

* Elected by Alumni.

OFFICERS OF ADMINISTRATION

FRED ENGELHARDT, A.M., PH.D., *President of the University*

NORMAN ALEXANDER, PH.D., *Dean of Men*

EUGENE K. AUERBACH, M.B.A., *Alumni Secretary and Director, Bureau of Appointments*

EDWARD Y. BLEWETT, B.A., *Assistant to the President*

GEORGE W. CASE, M.C.E., *Dean of the College of Technology and Director of the Engineering Experiment Station*

M. GALE EASTMAN, PH.D., *Dean of the College of Agriculture and Vice-Director of the Agricultural Experiment Station*

OREN V. HENDERSON, *Registrar*

ERIC T. HUDDLESTON, B.ARCH., *Supervising Architect*

C. FLOYD JACKSON, B.A., M.S., *Dean of the College of Liberal Arts*

JOHN C. KENDALL, B.S., *Director of the General Extension Service and Director of the Agricultural Experiment Station*

HAROLD W. LOVEREN, B.S., *Superintendent of Property*

RAYMOND C. MAGRATH, *Treasurer and Business Secretary*

MARVIN A. MILLER, B.A., B.S., *Librarian*

ANDREW J. OBERLANDER, M.D., *University Physician*

HERMON L. SLOBIN, PH.D., *Dean of the Graduate School*

RUTH J. WOODRUFF, PH.D., *Dean of Women*

THE UNIVERSITY FACULTY AND STAFFS *

ENGELHARDT, FRED, *President of the University*

Ph.B., Yale, 1908; A.M., Columbia, 1915, Ph.D., 1924. Graduate study, Yale university, 1908–09; Harvard university, Summers 1909–10; University of Pennsylvania, 1916–17. Assistant instructor, Yale university, 1908–09; teacher and principal, public schools, New York, and private schools, Pennsylvania and Illinois until 1917; military service, 1917–19; inspector, elementary education, New York State department of education, 1919; director, Bureau of Administration, Pennsylvania State department of education, 1919–22; assistant dean in charge, College of Liberal Arts, University of Pittsburgh, 1922–24; professor of educational administration, College of Education, University of Minnesota, 1924–37. Present position, 1937–

THOMPSON, CHARLOTTE A., *Assistant Librarian Emerita*

Graduate, Concord High school. Teacher: Durham Point school and Concord, 1871–1895. Librarian, Durham Public library, 1895–1907. Assistant librarian, University of New Hampshire, 1907–29

ABELL, MAX F., *Assistant Professor of Agricultural Economics and Assistant Agricultural Economist in the Agricultural Experiment Station and Economist (Farm Management) in the Extension Service*

B.S., Cornell university, 1914; Ph.D., *ibid.*, 1924. Graduate student, Ohio State university, 1914–15. Student assistant, Cornell university, 1915–17; instructor and assistant professor, Connecticut Agricultural college, 1917–20; assistant professor, Massachusetts Agricultural college, 1920–26; present position, 1926–

ACKERMAN, WALTER T., *Assistant Professor of Agricultural Engineering and Agricultural Engineer in the Agricultural Experiment Station and Extension Service*

B.S., Connecticut Agricultural college, 1915; B.S.A.E., Iowa State college, 1922. Assistant in mechanical engineering, Connecticut Agricultural college, 1916–17; supervisor of agriculture, Connecticut State board of education, 1917–18; in charge of agricultural engineering department, Connecticut Agricultural college, 1919–20; instructor in agricultural engineering, Iowa State college, 1920–23; assistant professor of agricultural engineering, Virginia Polytechnic institute, 1924. Specialist in rural electricity in the Agricultural Experiment station, 1925–32; assistant professor of agricultural engineering and agricultural engineer of the Experiment station, 1932–36; present position, 1936–. Leave of absence, January 1–August 31, 1939.

* As of February 1, 1939, for the fiscal year beginning July 1, 1938.

ADAMS, ELOI A., *Agricultural Agent in Strafford County*
B.S., University of New Hampshire, 1918. Practical farmer since 1918. Service department, 1919–28; present position, 1928–

AHERN, CORNELIUS J., *Agricultural Agent in Cheshire County*
B.S., University of New Hampshire, 1934. General Ice Cream corporation, 1934–36. Acting agricultural agent in Cheshire county, Extension service, 1936; present position, 1937–

ALEXANDER, NORMAN, *Dean of Men and Associate Professor of Economics*
B.A., University of North Dakota, 1919; M.A., *ibid.*, 1920; LL.B., Yale university, 1922; Ph.D., Columbia university, 1931. Carnegie Teaching fellow, Columbia university 1924–25. President, Eastern Association of Deans and Advisers of Men 1931–32. Principal of schools, Clyde, North Dakota, 1915–17. Instructor in economics, 1922–24; assistant professor, 1925–28; associate professor, 1928–29; present position, 1929–

ANDERSON, KENNETH E., *Graduate Assistant in Bacteriology in the Department of Botany*
B.S., Cornell university, 1937. Assistant chemist and bacteriologist, New York water service corporation, 1937–38. Present position, 1938–

ATKINSON, EDWARD R., *Assistant Professor of Chemistry*
B.S., Massachusetts Institute of Technology, 1933; Ph.D., *ibid.*, 1936. Assistant and teaching fellow, Massachusetts Institute of Technology, 1933–36; instructor in chemistry, Trinity college, 1936–38. Present position, 1938–

AUERBACH, EUGENE K., *Alumni Secretary and Director of the Bureau of Appointments*
B.A., University of New Hampshire, 1928; M.B.A., Harvard Graduate School of Business Administration, 1930. Graduate study: Harvard Graduate School of Education, summer 1937; Harvard Graduate School of Business Administration, second semester, 1938–39. Warehouse superintendent, The Great Atlantic and Pacific Tea company, 1930–35; Assistant to the President, H. Tabenkan company, 1935–36. Assistant director, bureau of appointments, 1936; acting alumni secretary and acting director of the bureau of appointments, 1936–37; present position, 1937–

AYER, PERLEY F., *Instructor in Agricultural Economics and Specialist in Rural Organization and Recreation in the Extension Service*
B.S., University of New Hampshire, 1922; student, Cornell university, 1935–36; teacher and farmer at Country Life academy, Star, North Carolina, 1922–24; teacher, farm manager, and supervisor of boys' work at Pleasant Hill academy, Pleasant Hill, Tennessee, 1924–27; Boys' and Girls' Club agent in Merrimack County, 1927–36; present position, 1936–

BABB, ANITA N., *Home Demonstration Agent in Rockingham County*
Diploma, Boston School of Domestic Science; certificate, dietetics training, Wilmington, Delaware; certificate, dietetics training, Boston, Massachusetts; dietitian, Springfield, Mass., three years; teacher, Bangor, Maine, high school, one year; dietitian, Westfield, Mass., two and one-half years; dietitian, Camp Big Pine, eleven summers; home demonstration agent, Maine, three years; teacher, Spellman seminary, two years; present position, 1934–

BABCOCK, DONALD C., *Professor of History*
B.A., University of Minnesota, 1907; M.A., *ibid.*, 1908; S.T.B., Boston university, 1912. Ministry, 1909–19. Assistant professor of history, 1918–21; associate professor of history and political science, 1921–25; present position, 1925–

BACHELDER, JOSEPH E., JR., *Instructor in Sociology*
B.A., Westminster college, 1933; Ph.D., Yale university, 1937. Research assistant in Sociology, Institute of Human Relations, Yale university, 1934–36; Carnegie fellow, *ibid.*, 1933–34, and a fellow, 1935–36; present position, 1936–

BAILEY, MARIAN A., *Instructor in Home Economics*
B.S., University of Wisconsin, 1929; M.S., University of Chicago, 1935. Teacher of home economics, Woodstock high school, Woodstock, Illinois, 1929–34; associate professor of home economics, Wesleyan college, West Virginia, 1935–37; instructor, foods and nutrition, Rhode Island state college, 1937–38; present position, 1938–

BARKER, SHIRLEY F., *Library Assistant*
B.A., University of New Hampshire, 1934; A.M., Radcliffe college, 1938; present position, 1938–

BARRACLOUGH, KENNETH E., *Assistant Professor of Forestry and Extension Forester*
B.S., New York State College of Forestry, Syracuse university, 1921; blister rust agent with Bureau of Plant Industry, Rockingham county, New Hampshire, 1922–26; forester for Federal Emergency Relief Administration in the Northeastern States, office of Federal Extension service, April–June, 1935; present position, 1926–. Leave of absence, Jan. 1–June 30, 1939.

BARSTOW, CAROLINE O., *Library Assistant*
Present position, 1916–

BATCHELDER, LYMAN J., *Instructor in Woodshop, Department of Mechanical Engineering*
Perkins and Bancroft, architects, Haverhill, Mass., 1891–93; Batchelder and Guimon, store and bank fixtures, 1893–97; superintendent, mill and box shop, 1897–1900; foreman, Haverhill Wood Heel Company, Haverhill, Mass., 1900–03; foreman, woodshop, to chief draftsman, Laconia Car Company, Laconia, N. H., 1903–15; present position, 1915–

BAUER, GEORGE N., *Professor of Statistics in the Department of Mathematics and Officer in Charge of Freshmen*
B.S., University of Minnesota, 1894; M.S., University of Iowa, 1898; Ph.D., Columbia university, 1900; Goettingen, Germany, 1907–08. Principal of High school, Montevideo, Minn., 1894–95; instructor in mathematics, University of Iowa, 1895–98; instructor, associate professor, professor, chairman of department of mathematics, University of Minnesota, 1900–20. Associate professor of mathematics, 1924–28; acting dean of men, 1928–29; professor of statistics, and officer in charge of freshmen, 1928–33, College of Liberal Arts, 1929–33; professor of statistics, College of Technology, and officer in charge of freshmen, 1933–34; present position, 1934–

BECKWITH, MARION C., *Instructor in Physical Education for Women*
A.B., Oberlin college, 1935; M.Ed., University of New Hampshire, 1937. Graduate assistant in the department of physical education for women, 1935–37; present position, 1937–

BEECHER, MYRTIS E., *Home Demonstration Agent in Hillsborough County*
Graduate, Framingham Normal school, 1919; Summer school, Chautauqua, N. Y., 1923; teacher, Gardner, Mass., 1919–20; executive secretary, Girls' club, Gardner, 1920–24; home service department, Washburn Crosby company, 1924–26; present position, 1926–

BEGGS, ANN F., *Assistant Professor of Home Economics and Extension Economist (Home Management)*
Nasson institute, 1913–15; University of Chicago, January–September, 1927. Teacher, Hopkinton, N. H., 1915–16; Rochester, N. H., 1916–17. Emergency home demonstration agent, Hillsborough county, 1917–19; home demonstration agent, Hillsborough county, 1919–20; assistant state home demonstration leader, 1922–29; present position, 1929–

BENNET, MARION B., *Assistant Boys' and Girls' Club Agent in Merrimack County*
B.S. in Educ., State Teachers' college, Framingham, Mass., 1930. Teacher, Home Economics, Vineyard Haven, Mass., 1930–32; public welfare visitor, Springfield, Mass., 1933–35; teacher, evening school, Springfield, Mass., 1933–35; assistant county club agent, Springfield, Mass., 1935–37; present position, 1938–

BERZUNZA, JULIO, *Assistant Professor of Languages*
B.A., University of Oklahoma, 1921; M.A., University of Illinois, 1923. Assistant in Spanish, University of Oklahoma, 1919–21; assistant in romance languages, University of Illinois, 1921–25; instructor in Spanish and Italian, University of Maine, 1926–28; present position, 1928–

BINGHAM, SYLVESTER H., *Assistant Professor of English*
A.B., Dartmouth college, 1922; A.M., Harvard university, 1929; Ph.D., Yale university, 1937. Master, Taft school, 1926–28; instruc-

tor and assistant professor, Rollins college, 1928–33; present position, 1936–

BISBEE, HARLAN M., *Associate Professor of Education*
A.B., Bowdoin college, 1898; A.M., Harvard university, 1905. Assistant, Rumford Falls, Maine, High school, 1898; principal, Brewer, Maine, High school, 1899–1904; principal, Robinson seminary, Exeter, N. H., 1905–28. Assistant professor of education, 1928–30; present position, 1930–

BLEWETT, EDWARD Y., *Assistant to the President*
B.A., University of New Hampshire, 1926. Ginn and company, Boston, 1926–27. Alumni secretary, 1927–29; alumni secretary and executive assistant, 1928–29; executive secretary, 1929–37; chairman, committee on summer school, September 1, 1937–; present position, 1937–

BLICKLE, ROBERT L., *Assistant in Entomology and Research Chemical Assistant in Entomology in the Agricultural Experiment Station*
B.S., Ohio State university, 1937. Assistant in entomology, Louisiana State university, June 1937–January 1938; present position, Jan. 15, 1938–

BLOOD, EDWARD J., *Instructor in Physical Education and Athletics*
B.S., University of New Hampshire, 1935. U. S. Olympic team, Lake Placid, 1932; Germany, 1936; present position, 1936–

BLOOD, PAUL T., *Assistant Professor of Agronomy and Assistant Agronomist in the Agricultural Experiment Station*
B.S., New Hampshire college, 1921; M.S., University of New Hampshire, 1924. Graduate assistant in horticulture, University of New Hampshire, 1921–24; with Granite State Nurseries, Exeter, N. H., 1924–28; present position, 1928–

BOND, RICHARD G., *Assistant in Civil Engineering*
B.S., University of New Hampshire, 1938; present position, 1938–

BOTTORFF, CHARLES A., JR., *Assistant Professor of Poultry Husbandry and Poultry Pathologist of the Agricultural Experiment Station*
B.S. in Bacteriology, B.S. in Veterinary Medicine, and D.V.M., Washington State college, 1928. Instructor in poultry husbandry and poultry pathologist of the Experiment station, 1928–35; present position, 1935–

BOURNE, ELIZABETH, *Boys' and Girls' Club Agent in Rockingham County*
Diploma, Framingham Normal school, 1924. Teacher, household arts, Oak Bluffs, Mass., 1924–26; present position, 1926–

BOWEN, IRMA G., *Assistant Professor of Home Economics*
B.S., University of Rochester, 1925; graduate of Mechanics Institute, Rochester, New York, 1911; Teachers college, Columbia university, 1915–17. Studied, Boston Museum of Fine Arts; Grace Cornells' Art school; and Fellowcrafter's school, Boston; Universal School of

Handicrafts, 1937. Teacher: Mechanics Institute, 1911–15; New York Institute for the Blind, 1915–16; University of Nebraska, 1917–18; University of Louisiana, 1918; government service, 1918–20; director of training shop, Fashion Park Clothing factory, 1920. Instructor in home economics, 1920–27; present position, 1927–

BOWLER, EDMOND W., *Professor of Civil Engineering*
S.B. in Sanitary Engineering, Massachusetts Institute of Technology, 1914; assistant, Massachusetts Institute of Technology, 1914–15; topographer, U. S. Geological survey, 1913, 1915, 1916; second and first lieutenant, Engineer corps, U. S. A., Canal Zone, 1917–19; engineering expert, Boston law firm, 1919–20. Assistant professor of mathematics, 1920–27; assistant professor of civil engineering, 1927–28; associate professor, 1928–29; present position, 1931–

BRADLEY, R. CLAUDE, *Assistant Professor of Poultry Husbandry and Extension Poultryman*
A.B., B.S., B.S. Educ., Central Missouri State Teachers college, 1920; M.S., Cornell university, 1921; Ph.D., *ibid.*, 1926. Instructor in residence and extension teaching in poultry husbandry, Cornell university, 1921–26; research specialist for Pacific Egg producers, New York City, 1927; Manager, Garber Leghorn farm, Enid, Oklahoma, 1927–31; present position, 1931–

BREON, WILLARD S., *Graduate Assistant in Agricultural and Biological Chemistry in the College of Agriculture*
B.S., Pennsylvania State college, 1937; present position, 1937–

BROWN, FRED H., *Staff Sergeant, Detached Enlisted Men's List U. S. A., Assistant in Military Science and Tactics*
Enlisted in U. S. army, 1915; service in A.E.F., France, from 1917; in action near Lunéville, Lorraine, August, 1918; participated in battles of St. Mihiel and the Meuse-Argonne, September and October, 1918; promoted sergeant, 1919; service on the Rhine, 1919; returned to the United States, 1922. R.O.T.C., University of New Hampshire, 1924; staff sergeant, 1937–

BUFFINGTON, ALBERT F., *Instructor in Languages*
A.B., Bucknell university, 1928; A.M., Harvard university, 1932; Ph.D., *ibid.*, 1937. Student, summer 1926, University of Berlin, Germany. University of Pennsylvania, Lauber Fellowship in German, 1930; University of Pittsburgh, Fellowship in German, 1930; University of Chicago Fellowship, 1930. Part-time instructor in German, Bucknell university, 1927–28; head of German department, Central High school, Scranton, Pa., 1928–30; part-time instructor in German, Harvard university, 1930–37; present position, 1937–

BURACKER, SAMUEL L., *Major, Infantry, Assistant Professor of Military Science and Tactics*
Virginia Military Institute, 1912–15. Served with 318th infantry, 80th division, A.E.F., in the Artois sector, Picardy, St. Mihiel, and in

the Meuse-Argonne. Communications Course, Second Corps schools, Chatillon-sur-Seine, 1918; 12th U. S. infantry, Fort Meade, Maryland, 1920–21; commanded the Infantry school detachment, Fort Benning, Georgia, 1921–24; headquarters staff, Infantry school, 1924–25; graduate, Company Officers' class, Infantry school, 1926; 15th U. S. infantry, Tientsin, China, 1926–29; headquarters staff, Infantry school, 1930–34; present position, 1934–

BUTLER, ORMOND R., *Professor of Botany and Botanist of the Agricultural Experiment Station*

B.S., M.S., University of California, 1905; Ph.D., Cornell university, 1910; Diploma, Institut Nationale Agricole, Lausanne, 1895. Viticulturist-horticulturist, California, 1895–1900; assistant in viticulture, 1904–05; assistant at Whittier Pathological laboratory, 1906–08; research instructor, department of horticulture, University of Wisconsin, 1910–12. Botanist, Experiment station, 1912; present position, 1912–

CALKIN, JOHN W., *Assistant Professor of Mathematics*

B.A., St. Stephen's college, Columbia university, 1933; M.A., Harvard university, 1934; Ph.D., *ibid.*, 1937. Instructor in mathematics, Harvard university, 1934–37; research assistant, Institute for Advanced Study, Princeton university, 1937–38; present position, 1938–

CARLISLE, NANCY E., *Home Demonstration Agent in Carroll County*

B.S., University of New Hampshire, 1934. Acting home demonstration agent, Carroll county, January–March, 1935; filing clerk, department of agriculture, Concord, N. H.; commercial demonstrating, 1935. Home demonstration agent at large, 1935–38; present position, 1938–

CASE, GEORGE W., *Dean of the College of Technology, Director of the Engineering Experiment Station, and Professor of Mechanical Engineering*

B.S. in C.E., Purdue university, 1905; M.C.E., Cornell university, 1912. Assistant professor of civil engineering, Purdue, 1907–13; assistant professor of sanitary engineering, 1913–14, associate professor of sanitary engineering, 1914–16, professor of sanitary engineering, 1916–22, University of Pittsburgh. Chief engineer, American City Engineering Company, 1920–25. Dean of the College of Technology and professor of mechanical engineering, 1925–29; professor of civil engineering, 1926–29; present position, 1929–

CAUGHEY, ROBERT A., *Research Assistant in Industrial Engineering*

B.S., University of New Hampshire, 1935; M.S., Massachusetts State college, 1937; present position, 1937–

CHAPMAN, DONALD H., *Assistant Professor of Geology*

B.A., University of Michigan, 1927; M.A., *ibid.*, 1928; Ph.D., *ibid.*, 1931. Assistant in geology, University of Michigan, 1926–28; instructor in geology, Dartmouth college, 1928–30; part-time instructor in

geology, University of Michigan, 1930–31; visiting professor of physiography and meteorology, department of geography of the School of Geology, Louisiana State university, second semester, 1937–38. Instructor in geology, 1931–36; present position, 1936–

CHARLES, T. BURR, *Professor of Poultry Husbandry and Poultry Husbandman of the Agricultural Experiment Station*

B.S., Cornell university, 1915; M.S., *ibid.*, 1938. Principal, graded schools, Alpine, N. Y., 1909–10; assistant and instructor, Cornell university, 1913–16. Practical poultryman in New York state, 1916–20, 23–26. Instructor and assistant professor, Pennsylvania State college, 1920–23; associate professor, 1926–28; present position, 1928–

CLAPP, HENRY S., *Instructor in Ornamental Horticulture and Supervising Landscape Architect*

B.S., Cornell university, 1931. Graduate study, Cornell university, spring 1931 and summers 1933, 36; Harvard School of Landscape Architecture, 1935–36; nurseryman, Long Island State Park commission, Islip, New York, 1930; present position, 1931–

CLARK, EARL D., *Acting Assistant Boys' and Girls' Club Agent in Rockingham County*

B.S., University of New Hampshire, 1938; present position, 1938–

COATES, WILLIAM H., *Instructor in Agronomy and Assistant in the Soil Survey, Agricultural Experiment Station*

B.S. in Engineering, University of New Hampshire, 1934; B.S. in Agric., *ibid.*, 1938; present position, 1934–

COLBURN, HAZEL A., *Assistant Boys' and Girls' Club Agent in Hillsborough County*

B.S., University of New Hampshire, 1935; present position, 1935–

COLBY, RUTH T., *Instructor in Zoölogy*

B.S., University of New Hampshire, 1929; M.S., *ibid.*, 1931. Senior assistant in zoölogy, 1928–29; graduate assistant in zoölogy, 1929–31; present position 1931–Jan. 31, 1939. [Resigned]

COLOVOS, NICHOLOS F., *Assistant Professor of Animal Husbandry and Assistant in Animal Husbandry in the Agricultural Experiment Station*

B.S., University of New Hampshire, 1927; M.S., *ibid.*, 1931; present position, 1928–. Leave of absence, first semester, 1938–39

CONKLIN, JAMES G., *Instructor in Entomology and Assistant Entomologist of the Agricultural Experiment Station*

B.S., Connecticut Agricultural college, 1926; M.S., University of New Hampshire, 1929. Graduate work, Ohio State university, 1929–31. U.S.D.A., Bureau of Entomology, 1926–28. Graduate Assistant, Ohio State university, 1929–31. Field assistant, U.S.D.A., Bureau of Entomology, summer 1930; present position, 1931–. Leave of absence, Jan. 1–March 18, 1939

CONROY, JOHN J., *Instructor in Physical Education and Athletics*
B.A., University of New Hampshire, 1932. Tennis professional, Newport Casino, Newport, R. I., summers, 1929–37. Assistant, department of physical education and athletics, 1932–35; present position, 1935–. Leave of absence, first semester, 1939–40

CORTEZ, EDMUND A., *Assistant Professor of English*
B.A., Taylor university, 1923; B.O., Asbury college, 1924; B.D., Asbury Theological seminary, 1925; M.A., Columbia university, 1926; Ed.M., Harvard university, 1927; graduate study, Columbia university, summers of 1925, 26. Organizer and director of social-religious groups, Taylor university, 1921–23; associate in Dramatics and Public Speaking, Asbury college, 1924–25; part-time instructor in declamation, Phillips Exeter academy, 1928–33. Instructor in English, 1927–29; present position, 1929–

COULTER, CHARLES W., *Professor of Sociology*
B.A., University of Toronto, 1908; B.D., Victoria college, 1909; M.A., Yale university, 1910; Ph.D., *ibid.*, 1914. Assistant in economics, Yale university, 1914; instructor in sociology, Western Reserve university, 1915–19; assistant professor, Western Reserve university, 1919–23; exchange professor, University of Nanking, fall semester, 1922–23; Princeton-in-Peking lecturer, University of Peking, spring semester, 1922–23; Summer schools: Lakeside, 1926, 27; Hampton institute, 1928; Western Reserve university, 1929; visiting professor to universities of South Africa under Carnegie corporation, 1929–30; professor of sociology, Ohio Wesleyan university, 1923–34; present position, 1934–

COVER, MORRIS S., *Assistant Poultry Pathologist in the Agricultural Experiment Station*
V.M.D., University of Pennsylvania, 1938; present position, 1938–

COWELL, WILLIAM H., *Professor and Director of Physical Education and Athletics*
B.S., University of Kansas, 1910; University of Illinois, 1911–12; University of Pittsburgh, 1913. Coach, Haskell institute, Kansas, 1914; present position, 1915–. Leave of absence, November 1, 1938–June 30, 1939

COWEN, EDWARD G., *Major, Coast Artillery Corps, Assistant Professor of Military Science and Tactics*
A.B., Vanderbilt university, 1916; M.S. in E.E., Massachusetts Institute of Technology, 1927; Battery Officers Course, Coast Artillery School, 1923; Advanced Engineering Course, Coast Artillery School, 1923. Attached U. S. Air Service, Aerial observer, U. S. and A.E.F., 1918–19; 51st Coast Artillery, 1919–22; 92nd Coast Artillery, Philippine Islands, 1924–26; Member, Coast Artillery Board, 1927–29, 59th Coast Artillery, Philippine Islands, 1929–31; 69th Coast Artillery, 1931–34; 1st Coast Artillery, Panama Canal Zone, 1934–36; 7th Coast Artillery, 1936–38; present position, 1938–

DAGGETT, ALBERT F., *Assistant Professor of Chemistry*
B.S., University of New Hampshire, 1928; M.S., *ibid.*, 1930; Ph.D., Columbia university, 1934. Instructor, University of New Hampshire, 1928–31; research associate, Columbia university, first semester, 1934–35; Instructor, Hunter college, second semester and summer session, 1934–35. Instructor in chemistry, 1935–37; present position, 1937–

DART, J. DORIS, *Assistant Librarian and Cataloguer*
B.A., McGill university, 1921; graduate student, Yale university, 1921–23; certificate, Pratt Institute School of Library Science, 1925; cataloguer, Yale university library, 1926–29. Acting librarian, Feb. 6–March 21, 1932; head cataloguer, 1929–38; present position, 1938–

DAVIS, HENRY A., *Instructor in Agricultural and Biological Chemistry and Assistant in Agricultural and Biological Chemistry in the Agricultural Experiment Station*
B.S., University of New Hampshire, 1932; M.S., *ibid.*, 1934. Graduate assistant in agricultural and biological chemistry in the Agricultural Experiment station, 1932–34; present position, 1934–

DAVIS, MARION S., *Home Demonstration Agent in Sullivan County*
B.E., Keene Normal school, 1929. Teacher of home economics, Springfield, Vermont, high school, 1929–37; present position, 1937–

DAWSON, CHARLES O., *Instructor in Civil Engineering*
B.C.E., Ohio State university, 1930. Study, Massachusetts Institute of Technology, summer 1938; present position, 1930–

DEGLER, CARROLL, M., *Assistant Professor of Economics*
A.B., University of Kansas, 1925; M.B.A., New York university, 1927. Student assistant, University of Kansas, 1923–25; graduate study and assistant instructor, New York university, 1927–28 and 1936–37; graduate study, Columbia university, summers 1929, 31, 32 and 33. Instructor in economics, 1928–36; present position, 1936–

DEMOS, MILTIADES S., *Assistant Professor of Mathematics*
B.S., Robert college, Constantinople, Turkey, 1922; Ph.D., Harvard university, 1926. Sheldon Traveling fellow of Harvard university, Munich, Germany, 1926–27. Instructor, Harvard university, 1927–28; instructor, Columbia university, 1928–31; present position, 1931–

DEQUOY, STANLEY W., *Boys' and Girls' Club Agent in Grafton County*
Graduate, Essex County Agricultural school, 1917. Poultryman, North Andover, Mass., 1918–19; egg-laying contest poultryman, Essex County Agricultural school, 1920–21; Club agent, Essex county, Mass., 1921–26; present position, 1926–

DEVENS, W. GEORGE, *Captain, Coast Artillery Corps, Assistant Professor of Military Science and Tactics*
B.S., United States Naval academy, 1924. Graduate of Coast Artil-

lery school, regular course, 1935; Ordnance school, Course II, 1931; School for bakers and cooks, Fort McKinley, Philippine Islands, 1929; 52nd Coast artillery, 1924–28; 91st Coast artillery, Philippine Islands, 1928–30; ordnance department, 1930–34; education and recreation officer, Fort Mills, Philippine Islands, 1929–30; department director, Ordnance Field Service school, Raritan arsenal, New Jersey, 1931–34; present position, 1935–Oct. 5, 1938. [Transferred to West Point.]

DICKEY, EDNA F., *Assistant in History and House Director of Bickford House*
B.A., University of New Hampshire, 1933; M.A., *ibid.*, 1936. Summer school, Boston university, 1938. Graduate assistant in history, 1934–36; assistant in history, 1936–38; present position, 1938–

DIXON, PAUL J., *Boys' and Girls' Club Agent in Carroll County*
B.S., University of New Hampshire, 1928; present position, 1928–. Leave of absence, 1938–39

DOE, ROGER M., *Assistant in Animal Husbandry and Research Assistant in Animal Husbandry in the Agricultural Experiment Station*
B.S., University of New Hampshire, 1934; M.S., *ibid.*, 1936; present position, 1935–

DONOVAN, EDWARD T., *Assistant Professor of Mechanical Engineering*
B.S., University of Wisconsin, 1921. Assistant, University of Wisconsin, 1921; assistant and instructor, Purdue university, 1921–24; assistant engineer, Chicago, Milwaukee and St. Paul railway, 1924–26. Present position, 1926–

DOUGHERTY, LAWRENCE A., *Assistant Professor of Agricultural Economics and Extension Economist in Marketing*
B.S., Purdue university, 1921. Graduate work, University of Michigan, summers, 1922, 26; University of Minnesota, summer, 1928 and spring and summer quarters, 1930; University of New Hampshire, summer, 1932. High school science teacher, Iowa and Indiana, 1921–24; biology teacher, Connerville, Indiana, senior high school, 1924–26; field agent, Bureau of Plant Industry, U. S. D. A., summers 1923, 24, 25; assistant professor in science, Montana state normal college, 1927–29; present position, 1930–

DUNN, STUART, *Assistant Professor of Botany and Assistant Botanist of the Agricultural Experiment Station*
B.S., University of Minnesota, 1923; M.S., Iowa State college, 1925; Ph.D., University of Minnesota, 1931. Assistant in plant physiology, University of Minnesota, 1923–24; fellow in botany, Iowa State college, 1924–25; instructor in plant physiology, Iowa State college, 1925–26. Instructor in botany and assistant botanist of the Experiment station, 1926–37; present position, 1937–

DURGIN, ROSLYN C., *Instructor in Poultry Husbandry and Record of Performance Inspector and Research Assistant in Poultry Husbandry in the Agricultural Experiment Station*
B.S., University of New Hampshire, 1930. Assistant poultry tester

and assistant foreman of the poultry plant, 1930–31; assistant poultry tester in the Experiment station, 1931–35; record of performance and certification inspector in poultry husbandry in the Experiment station, 1935–36; present position, 1936–

DuRie, John D., *Graduate Assistant in Physical Education and Athletics*
B.S., University of New Hampshire, 1938; present position, 1938–

Eadie, William R., *Instructor in Zoölogy*
B.S., University of New Hampshire, 1932; M.S., *ibid.*, 1933. Assistant in zoölogy, University of New Hampshire, 1933–35; present position, 1935–. Leave of absence, 1938–39.

Eastman, M. Gale, *Dean of the College of Agriculture and Vice-Director of the Agricultural Experiment Station*
B.S., New Hampshire college, 1913; M.S., Cornell university, 1916; Ph.D., *ibid.*, 1931. County agent, Sullivan county, New Hampshire, 1913–14; assistant commissioner of agriculture, State House, Concord, N. H., 1914–15; superintendent, Willow farm, New London, N. H., 1916–18. Assistant professor of agronomy and assistant agronomist of the Experiment station, 1918–25; associate professor of agronomy and associate agronomist of the Experiment station, 1925–29; professor of agricultural economics and associate agricultural economist of the Experiment station, 1929–31; associate dean, 1931–33; dean of the College of Agriculture and professor of agricultural economics, 1933–38; present position, 1938–

Ekdahl, Adolph G., *Associate Professor of Psychology*
D.M.D., Tufts College Dental school, 1912; A.B., Clark college, 1919; A.M., *ibid.*, 1920; Ph.D., Ohio State university, 1925. Assistant and scholar in psychology, Clark university, 1919–20; instructor in psychology, Syracuse university, 1920–22; assistant professor of psychology, *ibid.*, 1922–23; instructor in psychology, Ohio State university, 1923–25; professor of education, Howard college Summer school, 1926, 27, and 28. Assistant professor of education, 1926–28; associate professor of education and psychology, 1928–29; associate professor of philosophy and psychology, 1929–34; present position, 1934–

Ekdahl, Naomi M. G., *Assistant Professor of Psychology*
B.A., Syracuse university, 1922; M.A., *ibid.*, 1923; Ph.D., Ohio State university, 1925. Research, Andover-Newton theological school, second semester, 1937–38. Dean of women and professor of education, Howard college Summer school, 1927. Dean of women and instructor in education, Summer school, 1928 and 1929; dean of women and assistant professor, *ibid.*, 1930–; instructor (part time) in education, 1926–29; assistant professor of education, 1929–34; present position, 1934–

Ellis, Elizabeth E., *Assistant Professor of Home Economics and Extension Nutritionist*
B.S., Teachers college, Columbia university, 1927; M.A., *ibid.*, 1929.

Graduate in home economics, Normal school, Truro, Nova Scotia, 1916; home economics diploma, MacDonald institute, Guelph, Ontario, 1920. Instructor, School of Home Economics, Truro; Halifax Ladies college, Nova Scotia; Soldier Settlement board, Woman's institute, and the Halifax Health center, 1916–27; present position, 1929–

ELLSWORTH, CLIFFORD C., *Acting Boys' and Girls' Club Agent in Strafford County*
B.S., University of New Hampshire, 1935. Assistant boys' and girls' club agent in Rockingham county, 1935–38; present position, 1938–

EPPELSHEIMER, DANIEL S., *Research Associate Professor of Industrial Engineering*
B.S., Harvard university, 1932; D.Sc., *ibid.*, 1935. Research Metallurgist with the Union Carbide and Carbon Research Laboratory, Niagara Falls, N. Y., 1935–38; present position, 1938–

EVANS, F. GAYNOR, *Instructor in Zoölogy*
B.A., Coe college, 1931; M.A., Columbia university, 1932; Ph.D., *ibid.*, 1937. Instructor, Coe college, 1929–31; lecturer, Columbia university, 1936; instructor in biology, College of the City of New York, 1937; present position, 1938–

EVANS, NELL W., *Instructor in Physical Education for Women*
B.S. in P.E., Sargent college of Boston university, 1935; M.Ed., University of New Hampshire, 1937. Graduate assistant in physical education for women, University of New Hampshire, 1935–37; present position, 1937–

FABELLO, JOHN T., *Graduate Assistant in Physical Education and Athletics*
B.S., University of Michigan, 1938; present position, 1938–

FALT, MARY H., *Circulation Librarian*
B.A., Acadia, 1926; B.S., Simmons college, School of Library Science, 1927; present position, 1927–

FISHER, ELWOOD G., *Graduate Assistant in Horticulture in the Agricultural Experiment Station*
B.S., University of Maryland, 1938; present position, 1938–

FLOYD, JOHN A., *Instructor in Languages*
A.B., Boston university 1928; Diplôme de Français; Degré Supérieur, University of Dijon, France, 1929; M.A., Middlebury college, 1937; present position, 1929–

FLOYD, LAWRENCE C., *Graduate Assistant in Economics*
B.A., Bates college, 1937. Summer school, University of New Hampshire, 1937, 38. Teacher, Sanborn seminary, 1937–38; present position, 1938–

FOGG, LLOYD C., *Associate Professor of Zoölogy*
B.S., Dartmouth college, 1922; M.S., *ibid.*, 1924; Ph.D., Columbia

university, 1930. Instructor, general biology and genetics, Dartmouth college, 1922–24; instructor, general biology, Washington Square college, New York university, 1924–31; cytologist, assigned to cancer investigations at Harvard Medical school, U. S. Public Health service, 1932–36; research fellow in preventive medicine and hygiene, Harvard Medical school. Instructor in zoölogy, March–September, 1937; assistant professor of zoölogy, 1937–38; present position, 1938–

FOULKROD, GEORGE M., *Assistant Professor of Agricultural Engineering and Assistant Agricultural Engineer in the Extension Service*
B.S., Pennsylvania State college, 1919; B.S. in agricultural engineering, *ibid.*, 1931; M.S. in agricultural education, *ibid.*, 1931. Instructor and assistant professor, Pennsylvania State college, 1919–31. Instructor in agricultural engineering and assistant agricultural engineer in the Experiment station, 1933–36; present position, 1936–

FUNKHOUSER, JAMES A., *Associate Professor of Chemistry*
B.S., Carnegie Institute of Technology, 1925; Ph.D., Ohio State university, 1930. Assistant and instructor, Ohio State university, 1926–30. Assistant professor of chemistry, 1930–38; present position, 1938–

FURMAN, ALBERT, *Graduate Assistant in Mathematics*
B.S., University of New Hampshire, 1938; present position, 1938–

GERAGHTY, MARY L., *Instructor in Agricultural Economics and Research Assistant in Agricultural Economics in the Agricultural Experiment Station*
A.B., Mt. Holyoke college, 1933. Clerk, actuarial department, Massachusetts Mutual Life Insurance company, 1934–37; present position, 1937–

GETCHELL, EDWARD L., *Associate Professor of Mechanical Engineering*
B.S., University of Maine, 1914; E.E., *ibid.*, 1920. Engineering staff, Stone & Webster, 1914–15; assistant superintendent, Cave Welding & Manufacturing company, Boston. 1915–16; submaster, Lawrence academy, Groton, Mass., 1916; principal, Westport High school, 1917. Instructor in mechanical engineering, 1917; in charge of auto mechanics and gas engine section in connection with vocational work at New Hampshire college, United States army training detachment, 1918; acting head of department, 1918–19; assistant professor of mechanical engineering, 1918–29; present position, 1929–

GIBBS, KENNETH E., *Boys' and Girls' Club Agent in Hillsborough County*
B.S., University of Maine, 1923. State forester, Orono, Maine, summer of 1923; agricultural teacher, Leavitt institute, Turner Center, Maine, 1923–25; present position, 1925–

GLOVER, LEON C., *Assistant Professor of Entomology and Research Assistant in Entomology in the Agricultural Experiment Station*
B.S., University of New Hampshire, 1923; M.S., *ibid.*, 1928; Ph.D., Iowa State college, 1936; present position, 1928–

GOODWIN, GEORGE F., *Graduate Assistant in Physical Education and Athletics*
B.S., Springfield college, 1937. Physical director, Northampton High school, 1937–38; present position, 1938–

GRANT, ROBERT H., *Instructor in English*
A.B., Bowdoin college, 1933. Student: University of New Hampshire, 1934, 36; Columbia university, summers, 1937, 38. Teacher: Gardiner, Maine, high school, 1933–36; Laconia, New Hampshire, high school, 1936–37; present position, 1937–

GRASSO, SALVATORE, *Instructor in Civil Engineering*
B.S., University of New Hampshire, 1937. Summer school, University of New Hampshire, 1938. Student engineer, Moose Brook Park C.C.C. Camp, Gorham, N. H., June–September, 1935; with U. S. army engineers on flood control projects, July–September, 1936. Assistant in civil engineering, 1937–38; present position, 1938–

GRAY, RENA, *Home Demonstration Agent in Belknap County*
B.S., Simmons college, 1916; A.M., Columbia university, 1928. Student, University of Wisconsin, 1916–17; summer school, University of Tennessee, 1938. Home economics teacher, Massachusetts, New Hampshire, and Hawaii, 1917–27; present position, 1928–

GRIGAUT, PAUL L., *Assistant Professor of Languages*
B. ès L., 1926, Certifié de Licence (Sorbonne); Diplôme de l'Ecole du Louvre, 1932. Lycée Henri IV, Paris, 1917–24; Paris university, Sorbonne, 1924–27, 1931–32; National School of the Louvre Museum, Paris, 1926–27. Instructor in languages, 1927–30; present position, 1930–

GRINNELL, HAROLD C., *Assistant Professor of Agricultural Economics and Assistant Agricultural Economist in the Agricultural Experiment Station*
B.S., Cornell university, 1921; M.S., *ibid.*, 1930. Dairy farmer, Broadalbin, New York, 1921–28; field agent, Federal Farm board, 1930–31; acting agricultural economist, University of Vermont, 1931–32; present position, 1932–

HADDOCK, JAY L., *Assistant Professor of Agronomy and Extension Agronomist*
B.S., Brigham Young university, 1930; M.S., Massachusetts State college, 1932. Instructor, agronomy department, Massachusetts State college, 1930–35; present position, 1935–

HAGER, RUSSELL P., *Instructor in Zoölogy*
B.A., Bates college, 1934; M.A., University of Illinois, 1935. Graduate student, Brown university, 1935–37. Assistant in zoölogy, 1937–38; present position, 1938–

HALL, CLYDE N., *Assistant Professor of Dairy Husbandry and Assistant Extension Dairyman*
B.S., University of Maine, 1923. Teacher, New York, 1923–25;

Maine, 1925–28. Milk tester, Mass., 1929–32; New Hampshire, 1932–33; present position, 1933–

HALL, MARY A., *Boys' and Girls' Club Agent in Cheshire County*
B.Ed., Keene Normal school, 1929. Teacher, High school, Canaan, New Hampshire, 1929–33; recreation advisor, Cheshire county, 1934–37; present position, 1937–

HARRINGTON, ROBERT W., JR., *Graduate Assistant in Zoölogy*
A.B., Bowdoin college, 1934. Fellow in biology, Bowdoin college, 1936–38; assistant director, Bowdoin's Kent's Island Scientific station, summers, 1937, 38; present position, 1938–

HART, ROBERT T., *Graduate Assistant in Chemistry*
B.S., University of New Hampshire, 1938; present position, 1938–

HARTWELL, WILLIAM H., *Assistant Professor of Physics*
B.S., Boston university, 1924; M.A., Wesleyan university, 1927. Assistant in physics, Boston university, 1924–26; assistant in physics, Wesleyan university, 1926–27; instructor in physics, University of Maine, 1927–28; assistant in physics, Harvard university, 1928–29. Instructor in physics, 1929–33; present position, 1933–

HARVEY, LASHLEY G., *Assistant Professor of Government and Education*
A.B., William Jewell college, 1925; A.M., Leland Stanford, Jr., university, 1930. Graduate study, Harvard university, 1936–38. Teacher, social studies, high schools, Missouri, Montana and Wyoming, 1923–29; assistant in political science, Leland Stanford, Jr., university, 1929–30; instructor to associate professor, political science and economics, Adams State Teachers' college, Colorado, 1930–36; present position, 1938–

HAUSLEIN, JOHN D., *Assistant Professor of Economics*
B.A., Yale university, 1916; M.A., Yale university, 1920. Laboratory assistant in accounting, Yale university, 1917; junior accountant, Whittlesey, Wythes & Wilson, New York city, 1919; field auditor, U. S. Housing corporation, Bridgeport, Connecticut, 1920; instructor in accounting, Yale university, 1921–26; present position, 1926–

HENDERSON, OREN V., *Registrar*
Valparaiso university. Purchasing agent, New Hampshire college, 1914–20; executive secretary and registrar, 1920–21; present position, 1921–

HENNESSY, WILLIAM G., *Associate Professor of English*
A.B., Boston university, 1916; A. M., Boston university, 1924. Professional stage manager and drama director, 1916, 1919–21; A.E.F., U.S.A., 1917–19; instructor in English and history, Hampton institute, Virginia, 1921; instructor in English and history, Northampton, Mass., high school, 1921–23; associate professor, Boston university Summer school, 1926 and 1928. Public speaking, coach of debating, 1923–25; director of dramatics, 1923–. Instructor in English, 1923–24; assistant professor of English, 1924–28; present position, 1928–

HEPLER, JESSE R., *Associate Professor of Horticulture and Associate Horticulturist of the Agricultural Experiment Station*

B.S., Pennsylvania State college, 1911; M.S., University of Wisconsin, 1922; instructor and graduate student in horticulture, University of Wisconsin, 1912–16. Assistant professor of horticulture and assistant horticulturist of the Experiment station, 1917–31; acting head of department of horticulture, 1938–; present position, 1931–

HERR, CLARENCE S., *Assistant Professor of Forestry and Assistant Extension Forester*

B.S., The Pennsylvania State college, 1925; M.S., Harvard university, 1930. U. S. Forest service, White Mountain National Forest, N. H., 1920–21; camp director, boys' camp, Shawnee-on-Delaware, Pa., seasons 1923, 24, 25; U. S. Forest service, Allegheny National Forest, Pa., 1925–26; blister rust agent with Bureau of Plant Industry, Hillsborough county, N. H., 1926–28. Assistant county agent in Coos and Grafton counties, 1928–36; acting extension forester, April–June, 1935, January–June, 1939; present position, 1936–

HICKEY, JOSEPH W., *Instructor in Chemistry*

B.S., University of New Hampshire, 1937. Graduate assistant in chemistry, 1937–38; present position, 1938–

HIGGINS, LEROY J., *Assistant Professor of Agronomy and Assistant Agronomist of the Agricultural Experiment Station*

B.S., University of New Hampshire, 1923. Submaster and teacher of agriculture, Walpole, N. H., High school, 1923–25; headmaster and teacher of agriculture, Sunapee, N. H., High school, 1925–27. Instructor in agronomy, University of New Hampshire, 1927–28. Headmaster, Pittsburgh, N. H., High school, 1928–29. Instructor in agronomy and assistant agronomist of the Experiment station, 1929–32; present position, 1932–. Leave of absence, second semester, 1938–39

HILL, HAZEL E., *Assistant Professor of Home Economics and Extension Clothing Specialist*

B.S. in Educ., Framingham State Teachers' college, 1928. Teacher, junior high school, high school and evening practical arts school, East Douglas, Mass., 1920–22 and Chicopee, Mass., 1922–26; present position, 1928–

HITCHCOCK, LEON W., *Professor of Electrical Engineering*

B.S., Worcester Polytechnic institute, 1908. Engaged in industrial electrical engineering, 1908–14; Revising and writing courses in electrical railways, practical electricity, electrical transmission and practical mathematics, with the department of university extension, Massachusetts State board of education, 1916–17; head instructor, electricians' division, New Hampshire college United States army training detachment, 1918. Instructor in electrical engineering, 1910–12; assistant professor, 1912–18; associate professor, 1918–21; present position, 1921–

HOBAN, MARGARET R., *Assistant Professor and Director of Physical Education for Women*

B.S., Boston university, 1931; graduate of Sargent School for Physical Education, 1925; Roger's School of Dramatic Art, 1927. Instructor, Hannah More academy, 1925–27; instructor and director of physical education for women, Thiel college, 1927–30. Director, Camp Marlyn for girls, 1931–; present position, 1931–

HOBBY, IRVING R., *Instructor in Government*

B.B.A., College of Business Administration, Boston university, 1922. Instructor in marketing, Boston university, 1921–25; instructor, Phillips-Andover academy, 1925–26; high school teacher, Middleboro, Mass., 1927–28; Cranston, Rhode Island, 1928–29; Rutland, Vermont, 1930–36; managing director, Fisk Rubber company, Berlin, Germany; head of merchandising service department, Flint Daily Journal, Flint, Michigan; field manager, General Service company, Boston. Instructor in economics, 1936–37; present position, 1937–

HODGDON, ALBION R., *Instructor in Botany*

B.S., University of New Hampshire, 1930; M.S., *ibid.*, 1932; Ph.D., Harvard university, 1936. Graduate assistant in botany, University of New Hampshire, 1930–32; assistant in botany and biology, Harvard university and Radcliffe college, 1932–36; present position, 1936–

HOITT, SAMUEL W., *Assistant State Leader, Boys' and Girls' Club Work*

B.S., University of New Hampshire, 1928; M.S., *ibid.*, 1931. Graduate assistant in agricultural economics in the Experiment station, 1929–31; assistant Boys' and Girls' club agent in Rockingham county, 1931–35; present position, 1935–. Leave of absence, 1938–39.

HOLDEN, EDWARD W., *Agricultural Agent in Merrimack County*

B.S., University of Maine, 1923. Agricultural agent, Strafford county, Extension service, 1923–24; present position, 1924–

HOOVER, EARLE E., *Assistant Professor of Economic Zoölogy*

B.S., Lebanon Valley college, 1934. Instructor, Johns Hopkins university, 1934–35; field zoölogist, U. S. department of the interior, in charge of New England region, 1935; biologist, New Hampshire Fish and Game commission, 1936–; present position, 1938–Jan. 7, 1939. [Deceased.]

HOUSTON, NORMAN J., *Research Assistant in Industrial Engineering*

B.S., University of New Hampshire, 1930. Estimator and draughtsman, Caughey & Pratt, Antrim, N. H., 1930–31; first lieutenant CA-Res., 6th CCC district, Camp Charles M. Smith, Waterbury, Vermont, 1935–36; foreman, Littleton Construction company, Littleton, N. H., 1937; present position, 1937–

HOWES, HORACE L., *Professor of Physics*

B.S., Syracuse university, 1905; Ph.D., Cornell university, 1915. Instructor in Physics, Cook academy, Montour Falls, New York, 1905–10; instructor in physics, Cornell university, 1910–15. Research

assistant, Carnegie institution of Washington, 1915–18. Summer research work with Professor Nichols of Cornell on fluorescent radiation, 1918–30; present position, 1918–

HUDDLESTON, ERIC T., *Professor of Architecture and Supervising Architect of the University*
B.Arch., Cornell university, 1910. Postle and Fisher, Chicago, 1910; S. Cronin, architect, Chicago, 1911; American Terra Cotta company, Chicago, 1911; Pretzinger and Musselman, architects, Dayton, Ohio, 1912–13; Schenk and Williams, architects, Dayton, 1914. Professor of Architecture, 1914; supervising architect, 1919; present position, 1919–

HUDON, LILLIAN B., *Manager of the University Dining Hall and Instructor in Home Economics*
B.S., University of New Hampshire, 1926. Teacher of home economics, St. Faith's school, Saratoga Springs, 1926–29; teacher of Latin and history, *ibid.*, 1927–29. Assistant manager of the university dining hall, 1929–37; present position, 1937–

IDDLES, HAROLD A., *Professor of Chemistry*
B.S., Michigan State college, 1918; M.S., University of Iowa, 1921; Ph.D., Columbia university, 1925. Instructor in chemistry, Michigan State college, 1918–20; research assistant in organic chemistry, University of Iowa, 1920–22; instructor in organic chemistry, Columbia university, 1922–29. University of Graz, Austria, summer of 1926. Cutting traveling fellow, research work at University of Manchester, England, and University of Munich, Germany, 1927–28; present position, 1929–

JACKSON, C. FLOYD, *Dean of the College of Liberal Arts and Professor of Zoölogy*
B.A., DePauw university, 1905; M.S., Ohio State university, 1907. Instructor, DePauw university, 1904–05; fellow, Ohio State university, 1905–07. Instructor in entomology, 1908–09; assistant professor of entomology and zoölogy, 1909–10; professor of zoölogy and entomology, 1910–17; professor of zoölogy, 1917–30, present position, 1930–

JACKSON, FREDERICK D., *Assistant Professor of Electrical Engineering*
B.S., Pennsylvania State college, 1920. Western Electric company, New York, 1920–21; instructor in School of Electrical Engineering, Cornell university, 1921–23; radio engineering department of the General Electric company, 1923–24; Philadelphia Electric company, summer 1922; American Telephone and Telegraph company, long lines department, Philadelphia, summer 1925; General Electric company, summer 1929; New England Telephone and Telegraph company, summer 1930. Instructor in electrical engineering, 1924–27; present position, 1927–

JAREST, JOSEPH R., *Research Assistant in Industrial Engineering*
B.S., University of New Hampshire, 1934; present position, 1937–

JEWETT, IRENE E., *Assistant Boys' and Girls' Club Agent in Grafton County*
B.E., Keene Normal school, 1932. Teacher, Monroe, New Hampshire, 1932–34; present position, 1934–

JOHNSON, ARTHUR W., *Associate Professor of Economics*
Bay Path institute, Normal department, Springfield, Mass.; B.B.A., College of Business Administration, Boston university; M.B.A., *ibid.*, 1929. Certified public accountant, New Hampshire; head of commercial department, Oldtown High school, Oldtown, Maine, 1915–16; head of accounting department, Bay Path institute, 1916–17; instructor in accounting and business mathematics, Medford, Mass., high school, 1917–20; special instructor of accounting, College of Business Administration, Boston university, evening division, 1930–31; secretary-treasurer, State Board of Accountancy, New Hampshire. Instructor in economics, 1920–21; assistant professor of economics, 1921–27; present position, 1927–

JOHNSON, GIBSON R., *Assistant Professor of History*
A.B., Muskingum college, 1916; M.A., Princeton university, 1920; Ph.D., Edinburgh university, 1922. Graduate study, University of Berlin, summer of 1921. Associate and professor of religion, Muskingum college, 1922–29; dean of School of Religion, Parsons college, 1929–32; present position, 1932–

JOHNSON, LAWRENCE A., *Instructor in Dairy Husbandry and Extension Dairyman*
B.S., Michigan State college, 1936; graduate study, Rutgers university, 1937–38; present position, 1938–

JONES, ARTHUR W., *Assistant Professor of History*
Ph.B., Dennison university, 1920; M.A. Ohio State university, 1923. Graduate work, Harvard university, 1925–26, 1937–38. Principal, Everly High school, Everly, Iowa, 1921–22; instructor, European history, Ohio State university, 1923–25; instructor, Bureau of University Travel—in Europe, 1926–; present position, 1926–

JUSTICE, CHARLES M., *Assistant Professor of Physical Education and Athletics*
B.A., University of Nebraska, 1932. Graduate study, University of Nebraska, summers, 1932, 34, 37; University of New Hampshire, 1938. Science instructor, director of athletics and coach, Cambridge, Nebraska, high school, 1932–34; head football coach, director of intramural sports, track coach, assistant commandant of cadet regiment, and physical education instructor, Central High school, Omaha, Nebraska, 1934–37. Instructor in physical education and athletics, 1937–38; present position, 1938–

KALIJARVI, THORSTEN V., *Professor of Government*
A.B., Clark university, 1920; A.M., *ibid.*, 1923; Ph.D., University of Berlin, 1935. Graduate work, Carnegie Endowment fellow, School of

Arts and Sciences, Harvard university, 1920–22. Attended Hague Academy of International Law and Geneva School of International Relations, summer of 1929. Conducted Manchester public forum, February–April, 1937. Instructor in modern languages, 1923–24; instructor in history and political science, 1924–25; assistant professor of history and political science, 1925–27; assistant professor and acting head of the department of political science, 1927–28; associate professor of political science, 1928–37; present position, 1937–

KARR, MARGARET, *Instructor in Home Economics*
B.S., University of Maryland, 1930; M.A., Mills college, 1932. Fellowship in the department of child development, Mills college, 1931–32. Instructor in department of child development, Mills college, 1932–35; and summer schools of 1935, 36, *ibid.* Research assistant, Fels Research institute, Antioch college; present position, 1937–

KELLEY, RUTH B., *Library Assistant*
B.A., University of New Hampshire, 1937; present position, 1937–

KENDALL, JOHN C., *Director of the General Extension Service and Director of the Agricultural Experiment Station*
B.S., New Hampshire college, 1902. Instructor and assistant professor of dairy husbandry, North Carolina State college, 1902–07; Kansas State dairy commissioner, 1907–08; professor of dairy husbandry, Kansas State Agricultural college, 1908–10. Director, Agricultural Experiment station, 1910–; director of extension service, 1911–1938; present position, 1938–

KICHLINE, WILLIAM L., *Instructor in Mathematics*
B.A., Lehigh university, 1924; M.S., *ibid.*, 1928. Assistant in mathematics, Lehigh university, 1924–28; instructor in mathematics, *ibid.*, 1928–31; present position, 1931–. Leave of absence, first semester, 1939–40.

LAMOUREUX, LUCILLE L., *Graduate Assistant in Languages*
A.B., Regis college, 1936; Junior year, Sorbonne, Paris, France, receiving Diplôme de Civilisation Française, Cours Supérieur, Diplôme de Langue Française. Teacher of French, Miss Vining's Country Day school, Winter Haven, Florida, 1936–37; present position, 1937–

LASH, MABEL A., *Home Demonstration Agent in Merrimack County*
B.S., Simmons college, 1933. Clerk, one year; laboratory technician, Manchester Dairy system, one year; present position, 1935–

LATIMER, L. PHELPS, *Assistant Professor of Horticulture and Assistant Horticulturist of the Agricultural Experiment Station*
B.S., University of California, 1921; M.S., *ibid.*, 1922; Ph.D., *ibid.*, 1926. Graduate assistant in pomology, University of California, 1922–26. Instructor in horticulture and assistant horticulturist of the Experiment station, 1926–28; present position, 1928–

LATON, THOMAS J., *Assistant Professor of Mechanical Engineering*
B.S., New Hampshire college, 1904. Research in turbine work, Gen-

eral Electric company, Lynn, Mass., 1904–06; commercial turbine work, General Electric company, 1906–07; summers of 1918 and 1920 with National Woodworking Machine company, Dover, New Hampshire; summer of 1930 with Kidder Press company, Dover, New Hampshire. Instructor in drawing, 1907–18; assistant professor of drawing, 1918–25; present position, 1925–

LEAVITT, HAROLD I., *Instructor in Physics*
B.S., New Hampshire college, 1921; M.Ed., *ibid.*, 1936. Graduate student's course, Westinghouse Electric and Manufacturing company, 1921–22; commercial engineer, *ibid.*, 1922–26; present position, 1928–. Leave of absence, second semester, 1938–39.

LITTLE, EARL H., *Instructor in Agricultural Education; State Supervisor and Teacher Trainer, Agricultural Education, State Board of Education*
B.S., University of New Hampshire, 1923; M.S., Cornell university, 1936. Submaster and teacher of vocational agriculture, Hopkinton High school, Contoocook, New Hampshire, 1924–28; Walpole High school, 1928–31. Instructor in agricultural education, 1931–

LITTLEHALE, ALBERT D., *Shepherd, Agricultural Experiment Station*
Present position, 1907–

LOVEREN, HAROLD W., *Superintendent of Property*
B.S., University of New Hampshire, 1923. Assistant chief engineer, Pacific Mills, Dover, N. H., 1923–26; present position, 1926–

LUNDHOLM, CARL, *Associate Director and Assistant Professor of Physical Education and Athletics*
B.S., New Hampshire college, 1921. Graduate study, Columbia university, summers, 1937, 38 and June intercession, 1938. Instructor in American history and director of athletics, Spaulding High school, Barre, Vermont, 1921–24; instructor in American history and director of athletics, Deering High school, Portland, Maine, 1924–28. Acting director, bureau of appointments, April 1–August 31, 1935; instructor in physical education and athletics, 1928–35; assistant professor, 1935–38; acting director, 1938–39; present position, 1938–

LYFORD, WALTER H., JR., *Instructor in Agricultural and Biological Chemistry and Agronomy and Assistant in the Soil Survey, Agricultural Experiment Station*
B.S., University of New Hampshire, 1930; M.S., *ibid.*, 1932. Graduate assistant in chemistry, 1930–32; present position, 1935–

MACFARLANE, JAMES, *Instructor in Floriculture and Florist of the Agricultural Experiment Station*
Dr. Bell's Collegiate High, London, 1880. Royal Horticultural Society's Experimental station, 1888. Work in private estates and commercial greenhouses in England, Germany, Belgium, France. Italy and New York, 1888–1915; present position, 1915–

MacLeod, Alan G., *Assistant Professor of Agricultural Economics and Assistant Economist in Marketing in the Agricultural Experiment Station and Extension Service*

B.A., University of Saskatchewan, 1927; M.A., *ibid.*, 1929. Graduate student, Harvard university, 1931–33, 1935. Chemist, Canadian Co-operative Wheat Producers, 1929–31; resident observer, Brookings institution, 1933; wheat specialist, Brookings institution, 1934; present position, 1936–

Magrath, Raymond C., *Treasurer*

Burdett Business college, 1916. Northfield schools, Northfield, Mass., 1916–18 and 1919–20. Executive secretary: New Hampshire Flood Reconstruction Council, 1936; New Hampshire Disaster Emergency Committee, 1938. Chief clerk, 1920–23; business secretary, 1923–27; treasurer and business secretary, 1927–38; present position, 1938–

Manton, Robert W., *Director and Associate Professor of Music*

Harvard university, 1918; studied privately the pianoforte and organ under Harris S. Shaw of Boston; composition under Edward B. Hill, Boston, and M. Vincent d'Indy in Paris. Instructor in pianoforte, Mitchell military school, Billerica, Mass.; taught privately piano, harmony, counterpoint, etc., at Boston; organist and choirmaster, Grace Episcopal church, South Boston. Director and instructor in music, 1923–26; assistant professor, 1926–28; present position, 1928–

Marsden, Thomas A., Jr., *Instructor in Horticulture and Extension Horticulturist in Landscape Gardening*

B.S., University of New Hampshire, 1935; present position, 1937–

Marsh, William F., *General Trainer and Instructor in the Department of Physical Education and Athletics*

Woodlawn school, Worcester, Mass. Track coach and trainer, Iowa State college, 1905; track coach, Colby college, 1908; track coach and trainer, Bowdoin college, 1911; assistant track coach, Amherst college, 1921–22; freshman track coach and assistant trainer, Dartmouth college, 1923–24; present position, 1926–

Marston, Philip M., *Assistant Professor of History*

B.A., University of New Hampshire, 1924; M.A., *ibid.*, 1927. Student assistant in education and psychology, 1924; graduate assistant in education, psychology and social science, 1924–25; instructor in social science and sociology, 1925–29; assistant professor of social science and sociology, 1929–30; assistant professor of history and social science, 1930–31; present position, 1931–

Martin, Carl L., *Assistant Professor of Veterinary Science and Veterinarian of the Experiment Station*

B.S., University of New Hampshire, 1925; D.V.M., Ohio State university, 1928. In general practice, Southbridge, Mass., 1928; present position, 1928–

MASON, CHARLES M., *Associate Professor of Chemistry*
B.S., University of Arizona, 1928; M.S., *ibid.*, 1929; Ph.D., Yale university, 1932. Teaching fellow, University of Arizona, 1928–29; assistant in chemistry, Yale university, 1929–31; university fellow and Garland scholar, Yale university, 1931–32. Assistant professor of chemistry, 1932–38; present position, 1938–

MCGRAIL, THOMAS H., *Assistant Professor of English*
B.A., University of New Hampshire, 1927; M.A., Cornell university, 1931; Ph.D., *ibid.*, 1936. Graduate assistant in English, 1927–28; instructor in English, 1928–36; present position, 1936–

MCLAUGHLIN, HELEN F., *Professor of Home Economics*
B.A., University of Wisconsin, 1909; B.S., Simmons college, 1915; M.A., Teachers college, Columbia university, 1925. Home Demonstration agent, Extension service, 1917–20; instructor in household science, 1920–21; associate professor, 1921–23; present position, 1923–

MEAD, ALDEN H., *Boys' and Girls' Club Agent in Coos County*
B.S., Cornell university, 1928. Assistant club agent, Monroe county, New York, 1929; club agent, Columbia county, New York, 1929; farmer, New Milford, Pennsylvania, 1929–30; present position, 1930–

MELLON, EDWARD F., *Graduate Assistant in Chemistry*
B.S., Allegheny college, 1937; present position, 1937–

MELNICK, CHARLES H., *Assistant in English*
B.A., University of New Hampshire, 1936. Cadet teacher, one term, Haverhill, Mass., high school, 1935–36; present position, 1937–

MEYERS, THEODORE R., *Assistant Professor of Geology*
B.A., Ohio State university, 1926; M.A., *ibid.*, 1929. Austin fellow, Harvard university, 1931–32. Assistant in geology, Ohio State university, 1924–26; assistant geologist for the geological Survey of Ohio, summers 1925–28; geologist, New Hampshire State highway department, summers of 1935 and 36. Instructor in geology, 1927–34; present position, 1934–

MILLER, MARVIN A., *Librarian*
B.A., University of North Carolina, 1926; B.S., School of Library Service, Columbia university, 1929. Library assistant, University of North Carolina, 1923–26; English teacher, Leaksville, North Carolina, high school, 1926–27; stack supervisor, New York public library, 1928–29; reference assistant, information desk, New York public library; 1929–32; present position, 1932–

MILLS, MARIAN E., *Assistant Professor of Botany*
B.S., Teachers college, Columbia university, 1917; M.A., *ibid.*, 1920. Instructor in science, high school, Montclair, New Jersey, 1915–21; assistant in biology department, Teachers college, 1921–22; associate

professor of biology, Kent State Normal college, 1922–27; present position, 1927–

MOORE, HERBERT C., *Assistant Professor of Dairy Husbandry and Assistant Dairy Husbandman in the Agricultural Experiment Station*
B.S., Purdue university, 1923; M.S., University of Minnesota, 1925. Instructor in dairying, Rutgers university, 1925–26; chemist, The Paulus Dairy company, Inc., New Brunswick, New Jersey, 1926–28. Instructor in dairy husbandry and assistant dairy husbandman in the Experiment station, 1928–35; present position, 1935–

MORAN, CLEMENT, *Associate Professor of Physics*
A.B. Defiance college, 1910; M.S., Cornell university, 1935. Instructor in science and mathematics, Starkey seminary, Lakemont, N. Y., 1910–14; standardizing laboratory of the General Electric company, 1917–19. Instructor in physics, 1914–18; assistant professor of physics, 1918–29; present position, 1929–

MORROW, KENNETH S., *Professor of Dairy Husbandry and Dairy Husbandman of the Experiment Station*
B.S., University of Minnesota, 1918; M.S., *ibid.*, 1925. Operated dairy farm, Minnesota, 1919–24. Assistant dairy husbandman, Clemson college, South Carolina, 1925; associate diary husbandman, *ibid.*, 1926–28; assistant professor of dairy husbandry and associate dairyman, University of West Virginia, 1928–31; assistant dairy specialist in the Extension service, Rutgers university, 1931–34; present position, 1934–

MOULTON, VERNA E., *Graduate Assistant in Home Economics*
B.S., University of New Hampshire, 1938; present position, 1938–

NEVILLE, JOHN P., *Assistant to the Director of the General Extension Service and Agricultural Experiment Station*
B.A., University of New Hampshire, 1927. Publicity agent and executive assistant in A.A.A. in the Extension service, 1935–36; assistant agricultural editor in the Experiment station and Extension service, 1936–38; present position, 1938–

NOLAN, KENNETH G., *Graduate Assistant in Botany in the Agricultural Experiment Station*
B.S., Massachusetts State college, 1938; present position, 1938–

NULSEN, WILLIAM B., M.S., *Assistant Professor of Electrical Engineering*
B.S., California Institute of Technology, 1918; M.S., University of New Hampshire, 1930. Graduate study, Union college, 1920–21. General Electric company, Schenectady, New York, 1918–26. Instructor in electrical engineering, 1926–29; present position, 1929–

OBERLANDER, ANDREW J., *University Physician*
B.S., Dartmouth college, 1926; M.D., Yale university, 1933. Assistant professor of physical education and assistant football coach, Ohio State university, 1926–30; head football coach and assistant pro-

fessor in physical education, Wesleyan university, 1930–33; interne in the University hospitals, Cleveland, Ohio, 1934–35; interne in the department of mental hygiene of the state of New York at Letchworth village, 1935–36; private practice, Reading, Mass., 1936–37; present position, 1938–

O'BRIEN, DANIEL A., *Agricultural Agent in Coos County*
Cornell university, 1913. Agricultural instructor, high school, Little Valley, New York, 1913–17; assistant farm manager, Parish, New York, 1920; present position, 1920–

O'CONNELL, ELIAS M., *Instructor in Forging*
Graduate, Wentworth institute, course in forging, hardening and tempering, 1923; graduate, two-year course in pattern making, *ibid.*, 1925. Employed as acetylene welder and shop worker for Biddle and Smart of Amesbury, Mass., 1922–23; as pattern maker, 1925–26; electric welder Sullivan Machine company, Claremont, N. H., summers, 1936–37; present position, 1926–

O'KANE, WALTER C., *Professor of Economic Entomology and Entomologist of the Agricultural Experiment Station*
B.A., Ohio State university, 1897; M.A., *ibid.*, 1909; D.Sc. (hon.), *ibid.*, 1932. Newspaper and magazine work, 1899–1909; United States food administration, 1917–18; chairman of board appointed by U. S. Secretary of Agriculture to combat Mediterranean fruit fly in Florida, January–November, 1930; chairman, National Plant Board, 1930–35; chairman, board of governors, the Crop Protection Institute, 1920–. Deputy commissioner of agriculture, State of New Hampshire, 1913–; State nursery inspector, 1915–. Associate professor of entomology and assistant entomologist in the Experiment station, 1909–10; present position, 1910–

PARKER, CLIFFORD S., *Professor of Languages*
A.B., Harvard university, 1912; A.M., *ibid.*, 1914; Ph.D., Columbia university, 1925. Master in French and German, St. Stephens school, 1912–13; instructor in French and German, Union college, 1914–16; master in French and Spanish, Country Day school, Kansas City, Missouri, 1916–17; assistant professor of French, University of Nebraska, 1919–20; instructor in French, Columbia university, 1920–28; associate professor of French, University of Maine, 1928–31; present position, 1931–

PARMENTER, MIRIAM F., *Home Demonstration Agent in Cheshire County*
B.S.Ed., Framingham State Teachers college, 1937; Framingham Normal school, 1918–21. Teacher, home economics, high school, Holden, Mass., 1921–23; Clarke school for the deaf, Northampton, Mass., 1923–25; present position, 1925–

PARTRIDGE, ALLAN B., *Assistant Professor of History*
B.A., Clark university, 1922; M.A. *ibid.*, 1923. Master in the Holderness school, 1923–25. Instructor in history and political science,

1925–29; present position, 1929–. Leave of absence, second semester, 1938–39.

PENSACK, JOSEPH M., *Graduate Assistant in Zoölogy*
B.S., The Pennsylvania State college, 1938; present position, 1938–

PERCIVAL, GORDON P., *Assistant Professor of Agricultural and Biological Chemistry and Assistant Chemist in Agricultural and Biological Chemistry in the Agricultural Experiment Station*
B.S., Massachusetts Agricultural college, 1924; M.S., *ibid.*, 1926. Graduate assistant, Massachusetts Agricultural college, 1924–26; present position, 1926–

PERKINS, DONALD M., *Instructor in Mathematics*
B.S., University of New Hampshire, 1931; M.S., *ibid.*, 1933. Graduate assistant, 1931–33; present position, 1933–

PERKINS, LILLIAN R., *Assistant, Library*
B.A., University of Oklahoma, 1933. Present position, 1934–Sept. 30, 1938. [Resigned.]

PERRETON, ARNOLD, *Assistant Professor of Architecture*
B.Arch., Carnegie Institute of Technology, 1927. One year of travel and study in Europe. Two years with Janssen & Cocken, architects, Pittsburgh. Instructor in architecture, 1928–31; present position, 1931–

PERRY, ERROL C., *Agricultural Agent for Carroll County*
B.S., Massachusetts Agricultural college, 1919. Tester for cow test associations, laborer and herdsman, Claremont, Lebanon and Hooksett, New Hampshire, 1920–29; present position, 1929–

PHILLIPS, THOMAS G., *Professor of Agricultural and Biological Chemistry and Chemist of the Agricultural Experiment Station*
B.S., Ohio State university, 1912; M.S., *ibid.*, 1913; Ph.D., University of Chicago, 1918. Instructor to professor, department of agricultural chemistry, Ohio State university, 1912–25; present position, 1925–

PIERCE, DOROTHY, *Graduate Assistant in the Department of Physical Education for Women*
B.S. in Phys. Educ. Sargent School for Physical Education, Boston university, School of Education, 1937. N.Y.A. supervisor, playgrounds, Leominster, Mass.; present position, 1937–Nov. 24, 1938. [Resigned.]

PIERCE, ELWOOD C., *Graduate Assistant in Agricultural and Biological Chemistry*
B.S., Ohio State university, 1937; present position, 1937–

PIERCE, EVERETT W., *Agricultural Agent in Hillsborough County*
B.S., Cornell university, 1923. Assistant county agent, Ontario county, New York, 1923; present position, 1923–

POTTER, GEORGE F., *Professor of Horticulture and Horticulturist of the Agricultural Experiment Station*
B.S., University of Wisconsin, 1913; M.S., *ibid.*, 1916; Ph.D., Cornell, 1930. Instructor in horticulture, University of Wisconsin, 1913–18; assistant professor of horticulture, *ibid.*, 1918–20; present position, 1920–Aug. 31, 1938. [Resigned.]

POWERS, NANCY, *Home Demonstration Agent at Large*
B.S., University of New Hampshire, 1937. Clerk, Liberty Mutual Insurance Company, Boston, Massachusetts, 1937–38; present position, 1938–

POWERS, WENDELL H., *Instructor in Chemistry*
B.S., Middlebury college, 1937. Graduate assistant in chemistry, 1937–38; present position, 1938–

PRINCE, FORD S., *Professor of Agronomy and Agronomist of the Agricultural Experiment Station*
B.S., University of Illinois, 1913. Graduate study, University of Wales, summer, 1938. Instructor in soils, Michigan Agricultural college, 1913–14; instructor and assistant professor of agronomy, New Hampshire college, 1914–18; county agricultural agent, Xenia, Ohio, 1918–25. Associate agronomist and extension specialist in soils and crops, 1925–32; associate professor of agronomy, associate agronomist of the Experiment station, and specialist in soils and crops in the Extension service, 1932–35; associate professor of agronomy and associate agronomist of the Experiment station, 1935–36; present position, 1936–

PRINDLE, GEORGE L., *Major, Infantry, Assistant Professor of Military Science and Tactics*
B.S., Connecticut State college, 1917. Appointed second lieutenant, infantry, Officers Reserve corps, August 15, 1917; promoted to first lieutenant, National Army, March 23, 1918; honorably discharged, September 29, 1919; appointed first lieutenant, regular army, July 1, 1920; promoted to captain, as of same date; promoted to major, August 1, 1935; graduate of company officers' course, the Infantry school, Fort Benning, Georgia, 1923; present position, 1936–

PURDY, WILFRED G., *Boys' and Girls' Club Agent in Merrimack County*
B.S., Massachusetts State college; M.S., Ohio State university. Fifteen years of practical farming; foreman, Ann Arbor, one year; teacher, Merrimac, Mass., 1934–35. Assistant Boys' and Girls' club agent in Merrimack county, Extension service, 1935–36; present position, 1936–

PURINGTON, JAMES A., *Agricultural Agent in Rockingham County*
B.S., New Hampshire college, 1916; M.S., Massachusetts Agricultural college, 1920. Boys' and Girls' club agent, Cheshire county, 1920–22; present position, 1922–

PUTNEY, EDWARD W., *Colonel, Coast Artillery Corps, U. S. A., Professor of Military Science and Tactics*

B.S., United States Military academy, West Point, 1908. Instructor, U. S. Military academy, 1912–16; instructor, director, assistant commandant, Army Heavy Artillery school, A.E.F., France, 1918; professor of military science and tactics, Rensselaer Polytechnic institute, 1919; assistant professor of military science and tactics, Massachusetts Institute of Technology, 1919–23. Graduate, advanced course, Coast Artillery school, Fort Monroe, Virginia, 1924; Graduate, Command and General Staff school, Fort Leavenworth, Kansas, 1925; Graduate, Army War college, Washington, D. C., 1931; present position, 1931–Nov. 5, 1938. [Transferred to Canal Zone.]

RATH, EDWIN R., *Industrial Research Engineer, Engineering Experiment Station*

B.S., University of Pittsburgh, 1917; E.E., *ibid.*, 1921. Apprenticeship course, H. L. Doherty Co., Denver, 1917–18; instructor in electrical engineering, University of Pittsburgh, 1918–20; professor of mathematics and physics, St. Vincents college, Latrobe, Pennsylvania, 1919–25; assistant professor of electrical engineering, University of Pittsburgh, 1921–23; associate professor, *ibid.*, 1924–26; manager of railway department, The Philip Carey company, Cincinnati, Ohio, 1926–28; manager of the electrical division, *ibid.*, 1928–29; manager of elastite flooring department, *ibid.*, 1929–30; assistant to vice-president and manager, insulation department, *ibid.*, 1930–32; present position, 1932–Sept. 30, 1938. [Resigned.]

RAWLINGS, CECIL O., *Assistant Professor of Horticulture and Extension Horticulturist*

B.S., University of Illinois, 1925. Graduate study, University of New Hampshire, 1933, 1938–39. U.S.D.A., Illinois, Florida and Georgia, 1925–26; horticultural agent, St. Louis and Southwestern railway, 1926–30; present position, 1930–

RICE, UNA A., *Home Demonstration Agent in Grafton County*

B.S., Teachers college, Columbia university, 1927. Nasson institute, 1914–16. Teacher, home economics, Maine, New Hampshire, Vermont and Massachusetts, 1916–29; present position, 1929–

RICHARDS, ALFRED E., *Professor of English*

A.B., Yale university, 1898; A.M., *ibid.*, 1900; Ph.D., University of Munich, Germany, 1904. Graduate study, University of California, summer, 1917, 27; Columbia university, 1920. Instructor in English and history, Winsted, Connecticut, 1900–01; instructor in modern languages, Lehigh university, 1904–05; instructor in German, Princeton university, 1905–11; instructor in English, University of Washington, 1911–12; lecturer, University of Minnesota, 1912; present position, 1912–

RICHARDSON, EDYTHE T., *Assistant Professor of Zoölogy*

B.S., New Hampshire college, 1922; M.S., *ibid.*, 1924. Graduate as-

sistant in zoölogy, 1922–24; instructor in zoölogy, 1924–29; present position, 1929–

RITZMAN, ERNEST G., *Research Professor in Animal Husbandry in the Experiment Station*

B.S.A., Iowa State college, 1903; M.S. (hon.), University of New Hampshire, 1928. With bureau of animal industry, U. S. department of agriculture, 1903–08; animal husbandman, Porto Rico Agricultural Experiment station, 1908–15; research associate, Carnegie Institution of Washington, 1934; present position, 1915–

ROBINSON, EARL P., *County Agent Leader in the Extension Service*

B.S., Michigan Agricultural college, 1907. Teacher, Northwood Center, N. H., 1907–08; agriculturist for Indiana Sugar company, 1912; county agricultural agent, Saginaw county, Michigan, 1913–17; assistant state leader, Michigan, 1917–18. Rural rehabilitation unit of federal relief administration, Washington, 1934. State executive officer, agricultural conservation program, 1936–; present position, 1919–

ROGERS, WARREN H., *County Agricultural Agent at Large*

B.S., University of New Hampshire, 1935; present position, 1935–

ROPER, ELIZABETH R., *Acting Boys' and Girls' Club Agent in Carroll County*

B.A., University of New Hampshire, 1928. Boys' and Girls' Club Agent in Strafford County, Extension service, 1928–38; present position, 1938–

ROWELL, BARBARA, *Assistant in English*

B.A., University of New Hampshire, 1933; M.A., *ibid.*, 1938. Cadet teacher, Bristol high school, one term, 1932–33. Part-time graduate student, 1933–34 and 1936–37; present position, 1934–

RUDD, HERBERT F., *Professor of Philosophy*

A.B., Central college, Iowa, 1900; B.D., University of Chicago, 1903; M.A., *ibid.*, 1913; Ph.D., *ibid.*, 1914. Principal of Munroe academy, Suifu, West China, 1906–08; general mission work, Nigyuanfu, 1909–14; lecturer on problems of China, University of Chicago, 1914; supervisor of mission schools, Suifu, 1914–16; principal of Munroe academy, 1916–17; professor of education and psychology, West China university, Chengtu, 1918–19; dean of department of education, West China university, 1920–21; special work, Columbia university and University of Chicago, 1921–22. Associate professor of education and psychology, 1922–25; professor of philosophy and psychology, 1925–34; present position, 1934–

SACKETT, EVERETT B., *Associate Registrar and Associate Professor of Education*

B.A., Hamline university, 1923; M.A., University of Minnesota, 1925; Ph.D., Columbia university, 1931. Teacher, high schools, Minnesota and Wisconsin, 1925–27; director of research and cur-

riculum, Panama Canal schools, 1930–35; lecturer, Colorado State College of Education, summers 1933, 34; chairman of admissions, Lincoln school, Columbia, 1935–36; extension instructor, State Teachers college, Montclair, N. J., 1936; research associate, New York Regents' Education Inquiry, 1936–37; instructor, Graduate School of Education, Harvard university, 1938; present position, 1938–

SANBORN, MARY L., *Assistant State Boys' and Girls' Club Leader, Extension Service*

Oread institute, Worcester, 1904; Teachers college, Columbia university, summer 1912, fall and winter terms, 1914; Colorado State college, summer, 1938. Teacher in grade schools in Massachusetts and New Hampshire, 1904–12; teacher of home economics, Westerly, Rhode Island, 1911–14; present position, 1915–

SAUER, GEORGE H., *Assistant Professor of Physical Education and Athletics*

B.S., University of Nebraska, 1934. Graduate study; University of Nebraska, summer, 1934; Columbia university, summer, 1938. Coached freshman football and basketball teams, University of Nebraska, 1934; played professional football with the Green Bay Packers, 1935–36; employed by General Foods, 1937; present position, 1937–

SCHOEDINGER, PAUL S., *Assistant Professor of English*

A.B., Princeton University, 1920; M.A., Ohio State university, 1921. Instructor in English, Ohio State university, 1921–22. Instructor in English, 1926–29; present position, 1929–

SCHOOLCRAFT, JAMES T., JR., *Instructor in Languages*

B.S., Union college, 1923; Abgangs-Zeugnis, Heidelberg university, 1924; A.M., Columbia university, 1926. Teacher: Columbia university, fall term, 1924; Hunter college, winter term, 1925–26; University of Manitoba, 1927–30; The Phillips Exeter academy, 1931–34; present position, 1936–

SCOTT, ROBERTA J., *Graduate Assistant in Physical Education for Women*

B.S., Sargent college of Boston university, 1938; present position, 1938–

SCRIPTURE, PAUL N., *Instructor in Agricultural and Biological Chemistry and Assistant in the Soil Survey, Agricultural Experiment Station*

B.S., University of New Hampshire, 1934. Laboratory assistant in agricultural and biological chemistry, 1934–35; present position, 1935–

SCUDDER, HAROLD H., *Professor of English*

B.S., Dartmouth college, 1903. Study at Cambridge university, England, 1936. Newspaper work in New England and the Pacific Northwest, 1904–13. Publicity director Federal Food administration for New Hampshire, 1918. Faculty: Boston university Summer session, 1917; University of Maine Summer session, 1930. In charge of publicity, New Hampshire college, 1913–23. Instructor in English,

1913–14; assistant professor, 1914–18; associate professor, 1918–28; present position, 1928–

SHEEHAN, ELEANOR L., *Instructor in Zoölogy*
B.S., University of New Hampshire, 1930; M.S., *ibid.*, 1931. Graduate assistant in zoölogy, University of New Hampshire, 1930–31; assistant in zoölogy, Barnard college, Columbia university, 1931–32; instructor, Adelphi college, 1932–33. Assistant in zoölogy, 1933–35; present position, 1935–

SHIMER, STANLEY R., *Assistant Professor of Agricultural and Biological Chemistry and Assistant Chemist of the Agricultural Experiment Station*
B.S., Muhlenberg college, 1918; M.S., Pennsylvania State college, 1923. Graduate study, Cornell university, 1929–30. Instructor in Science, high school, Lansdale, Pennsylvania, 1918–19; head of chemistry department, State Normal school, East Stroudsburg, Pennsylvania, 1919–20; head of physics department, Battin high school, Elizabeth, New Jersey, 1920–21; instructor in physiological chemistry, medical department, Temple university, 1921–22; graduate assistant in chemistry, University of Illinois, 1923–24. Instructor in agricultural and biological chemistry and assistant chemist of the Experiment station, 1924–28; present position, 1928–

SILCOX, HERBERT E., *Graduate Assistant in Chemistry*
B.S., University of New Hampshire, 1936. Employed by F. E. Jewett company, Lowell, Mass., 1936–37; present position, 1937–

SKELTON, RUSSELL R., *Associate Professor of Civil Engineering*
B.S. in civil engineering, Purdue university, 1923; C.E., *ibid.*, 1934. Highway engineer, Illinois Highway department, 1923–26; assistant engineer, bridge department of Southern railway system, 1926–28; New Hampshire State Highway department, resident engineer on construction and special design, summers 1929, '33; consulting engineer, City of Dover, N. H., summers, 1935, '36. Instructor in civil engineering, 1928–30; assistant professor of civil engineering, 1930–35; present position, 1935–. Leave of absence, 1938–39.

SLANETZ, LAWRENCE W., *Assistant Professor of Bacteriology, Department of Botany, and Assistant Bacteriologist in the Agricultural Experiment Station*
B.S., Connecticut State college, 1929; Ph.D., Yale university, 1932. Assistant instructor, Yale university, 1931–32. Instructor in bacteriology, department of botany, 1932–34; instructor in bacteriology, department of botany, and assistant in bacteriology in the Experiment station, 1934–38; present position, 1938–

SLOBIN, HERMON L., *Dean of the Graduate School and Professor of Mathematics*
A.B., Clark university, 1905; Ph.D., *ibid.*, 1908. Instructor, Michigan State college, 1908–09; instructor and assistant professor, Uni-

versity of Minnesota, 1908–18. Study at Cambridge university, England, and in Europe, 1932. Director of the Summer school, 1922–27; acting director, 1933; director, 1934–37; director of the Graduate school, 1928–30; dean of the Graduate school, 1930–; professor of mathematics, 1919–; present position, 1930–

SMITH, EDWIN K., *Colonel, Coast Artillery Corps, Professor of Military Science and Tactics*

M.E., Cornell university, 1906. Graduate, Battery Officers course, Coast Artillery school, Fort Monroe, Virginia, 1914; Inspector and Adjutant Base No. 1, St. Nazaire, France, 1918; Secretary to the Chief of Artillery, A.E.F., France, 1918 and 1919; graduate, Advanced course, Coast Artillery school, Fort Monroe, Virginia, 1924; graduate, Command and General Staff school, Fort Leavenworth, Kansas, 1925; professor of military science and tactics, Athens high school, Athens, Georgia, 1932–36; Executive 4th Coast Artillery, Fort Amador, Canal Zone, 1936; Executive and Adjutant, Pacific Sector, Balboa, Canal Zone, 1936–38; present position, 1938–

SMITH, GRACE H., *Home Demonstration Agent in Strafford County*

B.S., Cornell university, 1921. New York State College for Teachers, 1917–18. Assistant home demonstration agent, Suffolk county, New York, 1921–22; home demonstration agent, Cayuga county, New York, 1922–25, and in Herkimer county, New York, 1925–33; present position, 1933–

SMITH, HARRY W., *Professor of Economics*

A.B., Hamilton college, 1908; A.M., *ibid.*, 1912; A.M., Columbia university, 1920; Auburn Theological seminary, 1911. Summer 1926, studied, in Europe, international economic and political co-operation under appointment of Carnegie Endowment for International Peace. For three summers member of School of Politics at Williams college. State supervisor of workers' education, W.P.A., 1936–37. Professor of oratory and economics, Dubuque college and seminary, 1918–20; present position, 1920–

SMITH, LUCINDA P., *Associate Professor of English*

A.B., Colby college, 1901; M.A., Boston university, 1934. Taught in Massachusetts high schools, 1901–05; Dover, New Hampshire, high school, 1905–13. Instructor in English, 1919–26; assistant professor of English, 1926–29; present position, 1929–

SMITH, MELVIN M., *Associate Professor of Chemistry*

A.B., Colby college, 1890; A.M., *ibid.*, 1893. Submaster, 1898–1911 and headmaster 1911–16, Dover, New Hampshire, high school. Instructor in chemistry, 1917–21; assistant professor of chemistry, 1921–30; present position, 1930–

SMITH, ROYAL W., *Agricultural Agent in Belknap County*

B.S., University of New Hampshire, 1928. Agricultural agent in Carroll county, 1928–29; present position, 1929–

SMITH, TODD O., *Assistant Professor of Agricultural and Biological Chemistry and Associate Chemist in Agricultural and Biological Chemistry in the Agricultural Experiment Station*

A.B., Indiana university, 1910; M.S., New Hampshire college, 1917. Assistant chemist, Agricultural Experiment station, 1910–21; present position, 1921–

SMITH, WILLIAM W., *Assistant Professor of Horticulture and Research Assistant in Horticulture in the Agricultural Experiment Station*

B.S., University of New Hampshire, 1924; M.S., *ibid.*, 1929; Ph.D., Michigan State college, 1935. Graduate assistant, Michigan State college, 1929–33; research assistant, *ibid.*, 1933–36; present position, 1936–

SOLT, IRVIN H., *Assistant Professor of Physics*

B.A., Yale, 1917; Ph.D., *ibid.*, 1921. Graduate study, University of Paris, 1919. Instructor in physics, Lafayette college, 1921–22; instructor, assistant professor, University of Cincinnati, 1922–29; research engineer, Westinghouse Research laboratories, East Pittsburgh, Pa., summer, 1922, 1929–32; present position, 1938–

SOLT, MARVIN R., *Assistant Professor of Mathematics*

B.S., Lehigh university, 1918; M.S., *ibid.*, 1925. Instructor, Mercersburgh academy, 1918–19; instructor in mathematics at Lehigh university, 1919–26. Instructor in mathematics, 1926–29; present position, 1929–. Leave of absence, 1938–39.

SPAVEN, JOHN W., *Editorial Assistant in the Extension Service*

B.S., Cornell University, 1936. Executive assistant in the Experiment station and Extension service, 1936–38; present position, 1938–

SQUIRES, E. HOPE, *Assistant Cataloguer, Library*

B.A., University of North Dakota, 1937; B.S., Columbia university School of Library Science, 1938; present position, 1938–

STARKE, RAYMOND R., *Associate Professor of Hotel Administration*

A.B., Boston university, 1921; A.M., Harvard university, 1926. Graduate study, Cornell university, second semester, 1937–38. Assistant in physics, Harvard university, 1924–26. Instructor in physics, 1921–24; 1926–28; assistant professor of physics, 1928–38; present position, 1938–

STEVENS, CLARK L., *Professor of Forestry and Forester of the Agricultural Experiment Station*

B.S., New Hampshire college, 1917; M.F., Yale university, 1926; Ph.D., *ibid.*, 1930. Assistant in forestry, 1919, 1920–21; instructor in forestry, 1921; assistant professor of forestry, 1922–25; assistant professor of forestry and assistant forester of the Experiment station, 1925–37; associate professor of forestry and associate forester of the Experiment station, 1937–38; present position, 1938–

STEVENS, HENRY B., *Assistant Director of the General Extension Service and Executive Secretary of the Agricultural Experiment Station*
A.B., Dartmouth college, 1912. Student, folk-play and folk-schools, Europe, 1934. Assistant editor, Woman's Journal and Suffrage News, 1912–13; associate editor, 1914–17. Executive secretary, Experiment station and Extension service, 1918–38; present position, 1938–

STEWART, GLENN W., *Assistant in Geology*
B.S., University of New Hampshire, 1935; M.S., Syracuse university, 1937. Graduate study, Harvard university, 1938. Student assistant, University of New Hampshire, 1933–35; graduate instructor, Syracuse university, 1935–37; present position, 1938–

STOLWORTHY, E. HOWARD, *Assistant Professor of Mechanical Engineering*
B.S., Tufts college, 1922. Professional experience: design and installation of steam power and heating equipment. Instructor in mechanical engineering, 1922–29; present position, 1929–. Leave of absence, 1939–40.

STONE, SAMUEL A., *Instructor in Mathematics*
B.S., University of New Hampshire, 1936; M.S., *ibid.*, 1937; present position, 1937–

STOWE, A. MONROE, *Professor of Education*
Ph.B., Northwestern university, 1903; A.M., *ibid.*, 1904; A.M., Harvard university, 1905; Ph.D., Columbia university, 1909. Secondary school work, four years; associate professor of education, Kansas State Teachers college, 1909–12; director of training, State Normal school, Whitewater, Wisconsin, 1912–13; acting professor of education, DePauw university, 1913–14; President, University of City of Toledo, 1914–25; research, 1925–26; professor of education, Randolph-Macon Woman's college, 1926–34; visiting professor, Duke university summer school, 1927–34, 37; present position, 1934–

SWAIN, LEWIS C., *Instructor in Forestry and Music*
B.S., New Hampshire college, 1918. Graduate, Bandmaster School, Chaumont, France, 1919. Graduate study, Harvard university, summers, 1936, 37, 38. Bandmaster, 318th Engineers' Band, U. S. Army, 1919; employed in erecting department, Worthington Pump and Machinery Corporation, 1920–21; partner in woodworking and manufacturing company, 1921–26; assistant pathologist, United States bureau of plant industry and bureau of entomology and plant quarantine (civil service rating, associate pathologist), 1926–36; forester in the southeast district, State of New Hampshire, 1926–36. Instructor in music with the status of bandmaster in the department of military science, 1927–36; present position, 1936–

SWANTON, DONOVAN, *Major, Infantry, Associate Professor of Military Science and Tactics*
B.S., United States Military academy, 1917. Commanded machine-

gun company, 3rd division, A.E.F.; Victory medal, 6 clasps; Silver Star with oak-leaf cluster, 1918. Assistant adjutant, 3rd Division, Army of Occupation, the Rhine, to 1919. Secretary to the general staff, Paris, France, to 1920. Garrison duties, 1920–24. 2nd Corps Area staff, New York, 1924–26. Graduate, Infantry school, Fort Benning, Georgia, 1927. Attached, American embassy, Paris, 1927–28. Special student, the Sorbonne, 1928. Instructor in French and tactics, West Point, 1928–31. Garrison duties, 1931–34. Commanded C.C.C. camps, Bitter Root mountains, Montana and Cumberland mountains, Tennessee, 1933; present position, 1934–

SWASEY, HENRY C., *Associate Professor of Physical Education and Athletics*

B.S., Amherst college, 1915. Graduate study, Indiana university 1938–39. Fellow in physical education, Amherst college, 1915–16; instructor in physical education, Fessenden school, West Newton, Mass., 1916–17; instructor in physical education, Adelphia academy, Brooklyn, New York, 1917–18; instructor in physical education, Worcester Polytechnic institute, 1918–21. Assistant professor of physical education for men, 1921–26; present position, 1926–

SWEET, PAUL C., *Assistant Professor of Physical Education and Athletics*

B.S., University of Illinois, 1923. Graduate study: The University of Southern California, 1938, University of New Hampshire, second semester, 1939. Director of athletics and physical education, Elko, Nevada, County high schools, 1923–24. Instructor in physical education and athletics, 1924–27; present position, 1927–

SWONGER, CLAIR W., *Assistant Professor of Economics*

A.B., University of Kansas, 1925; A.M., Harvard university, 1927. Graduate study, Harvard university, 1932–33. Instructor in economics, 1927–33; present position, 1933–

TAYLOR, FREDERICK W., *Director of the Commercial Departments of the College of Agriculture*

B.S., Ohio State university, 1900. Assistant, Ohio Experiment station, 1900–01; government soil survey for the U. S. department of agriculture, 1901–03. Professor of agronomy and agronomist of the Agricultural Experiment station, 1903–32; dean of the College of Agriculture, 1915–33; director of the commercial departments of the College of Agriculture and agronomist of the Agricultural Experiment station, 1933–37; present position, 1937–

TEERI, ARTHUR E., *Graduate Assistant in Agricultural and Biological Chemistry in the College of Agriculture*

B.S., University of New Hampshire, 1937. Graduate study: Yale Medical school, first semester, 1937–38; University of New Hampshire, second semester, 1937–38; present position, 1938–

TEPPER, ALBERT E., *Instructor in Poultry Husbandry and Assistant Poultry Husbandman of the Experiment Station*

B.S., Pennsylvania State college, 1928; M.S., University of New

Hampshire, 1930. Poultry certification inspector in the Agricultural Experiment station, 1930–31; present position, 1931–

THOMAS, GEORGE R., *Assistant Professor of Architecture*
B.Arch., Carnegie Institute of Technology, 1930. Columbia university, summer 1938. European travel and study, June–September, 1933. In employ of architects: Neff and Thompson, Norfolk, Virginia; Parks and Baxter, Washington, D. C. Instructor, history and appreciation of art, Virginia Teachers college (Fredericksburg), summer, 1935. Instructor in architecture, 1930–34; present position, 1934–

TINGLEY, MARY A., *Assistant in Horticulture in the Agricultural Experiment Station*
B.S., University of New Hampshire, 1933; M.S., *ibid.*, 1936. Graduate assistant in horticulture in the Experiment station, 1934–36; present position, 1936–Aug. 31, 1938. [Resigned.]

TIRRELL, LORING V., *Professor of Animal Husbandry*
B.S., Massachusetts Agricultural college, 1920. Instructor, Massachusetts Agricultural college, 1920–21. Instructor, University of New Hampshire, 1921–25; assistant professor, 1925. Extension specialist in sheep and livestock, Connecticut Agricultural college, 1926–30. Associate professor of animal husbandry, 1930–36; present position, 1936–

TONKIN, JOHN C., *Instructor in Machine Shop*
Machinist and toolmaker, 1901–10. Instructor in machine work and forging, and mechanician to the laboratories, New Hampshire college, 1910–12. Director of Manual Training, Waltham, Mass., 1912–16; Watertown Arsenal, 1917–20; instructor in Mechanical School of American forces in Germany, 1920–21; foreman in machine shops in Lowell and Boston, 1921–24; present position, 1924–

TOWLE, CARROLL S., *Assistant Professor of English*
A.B., Bowdoin college, 1922; Ph.D., Yale university, 1933. Instructor, University of Texas, 1923–26. Teaching assistant, Yale university, 1926–29; instructor, Yale university, 1929–31. Head, Writers' Conference, University of New Hampshire Summer school, 1938; present position, 1931–

TYRRELL, DORIS E., *Instructor in Economics*
B.S., University of Minnesota, 1926; M.A., *ibid.*, 1934. Graduate study, Columbia university, summer, 1936. Teacher, Crosby-Ironton high school, 1922–25; Milwaukee university school, 1926; Stephens College for Women, 1927–31; University of Minnesota, 1932–34; Ironwood Junior college, 1934–38; present position, 1938–

VIER, DWAYNE T., *Graduate Assistant in Chemistry*
B.S., University of New Hampshire, 1937; present position, 1937–

WADLEIGH, CLARENCE B., *State Boys' and Girls' Club Leader, Extension Service*
B.S., New Hampshire college, 1918. Institute of cooperation, University of New Hampshire, 1932. 4-H county club leader, New Hampshire college, 1918–19; milk tester, New York State, 1919–20. Acting State club leader, 1920–21; present position, 1921–

WALSH, JOHN S., *Associate Professor of Languages*
A.B., Harvard university, 1915; M.A., Boston university, 1928. Taught in private and public high schools of Massachusetts and New Jersey. Instructor in languages, 1922–26; assistant professor, 1926–29; acting head of the department, 1929–31; present position, 1929–

WASHBURN, EMILY, *Reference Librarian*
B.S., Simmons college, school of social work, 1922; Graduate of Pratt Institute Library school, 1934. Teacher, Waynflete Latin school, Portland, Maine, 1922–26; associate general secretary of Y.W.C.A., Portland, Maine, 1926–29; substitute librarian, medical library of Massachusetts General hospital, 1931; librarian of The Joseph Conrad Memorial library, Seamen's Church institute, New York city, 1934–35. Circulation librarian, 1931–33; present position, 1935–

WEBBER, LAURANCE, E., *Research Assistant in Industrial Engineering*
B.S., University of New Hampshire, 1934. Mechanical inspector, U.P.M. Kidder Press company, Inc., 1934–37; Present position, 1937–

WEBSTER, ROBERT G., *Assistant Professor of English*
B.A., University of New Hampshire, 1926; M.A., *ibid.*, 1930. Student, Oxford and Cambridge universities, England, 1934–35. Graduate assistant in English and assistant in publicity, 1927; instructor in English, 1927–36; present position, 1936–

WELCH, ALBERT G., *Instructor in Mechanical Engineering*
B.S., University of New Hampshire, 1936. Second lieutenant, United States army, 1936–37; present position, 1937–

WELLS, HOWARD N., *Agricultural Agent in Sullivan County*
Special work, Cornell university, 1907–08, 1914; University of New Hampshire, 1932; present position, 1914–

WESTON, RUTH C., *Boys' and Girls' Club Agent in Belknap County*
B.A., New Hampshire college, 1921. Teacher, Temple, Walpole, and Hancock, New Hampshire. Boys' and Girls' club agent in Cheshire county, 1929–36; acting Boys' and Girls' Club agent in Belknap county, 1936–37; present position, 1937–

WHIPPEN, NORMAN F., *Boys' and Girls' Club Agent in Sullivan County*
B.S., New Hampshire college, 1918. Farmer, Chittenango, New York, 1919–20; milk tester, New York State, 1920; Boys' and Girls' Club agent, Merrimack county, University of New Hampshire Extension Service, 1920–23; Boys' and Girls' Club agent, Hampshire

County, Massachusetts Agricultural college, 1923–26; Superintendent, Hillside school for Boys, Greenwich, Mass., 1926–27; present position, 1928–

WHITE, GEORGE W., *Associate Professor of Geology and Assistant to the Dean of the College of Liberal Arts*
B.A., Otterbein college, 1921; M.A., Ohio State university, 1925; Ph.D., *ibid.*, 1933. Assistant geologist, geological survey of Ohio, summers of 1925–30 and 31; geologist, New Hampshire State highway department, summers, 1930, 35. Instructor in geology and mineralogy, University of Tennessee, 1925–26. Instructor in zoölogy and geology, 1926–28; assistant professor of geology, 1928–34; associate professor of geology, 1934–37; assistant in the office of the dean of the College of Liberal Arts, July 1–August 31, 1936; present position, 1937–. Leave of absence, first semester, 1938–39.

WILBUR, WALTER E., *Associate Professor of Mathematics*
B.S., University of Maine, 1908; M.S., *ibid.*, 1911. Instructor in mathematics, University of Maine, 1908–16; instructor in mathematics and science, Lynn Classical high school, 1916–18; Newton Classical high school, 1918–20; instructor in applied mathematics in the General Electric Engineering school, 1920–22. Instructor in mathematics, 1922–26; assistant professor of mathematics, 1926–32; present position, 1932–Sept. 3, 1938. [Deceased.]

WILLIAMSON, DAISY D., *State Home Demonstration Leader*
B. of H.E. (hon.), Normal school, Muncie, Indiana, 1917. Study: Normal school, Terre Haute, Indiana, 1900, 1907, 1908, 1919; Huntington college, Indiana, 1916. Teacher, Mt. Vernon and Sidney, Indiana, 17 years; head of home economics department, Huntington college, 1916–19; home demonstration agent, Sullivan County, Indiana, 1919. Assistant State home demonstration leader, February–June, 1920; present position, 1920–

WILLIAMSON, ELEANOR S., *Home Demonstration Agent in Coos County*
B.E., Keene Normal school. Framingham Normal school. Teacher, home economics, Groveton, New Hampshire, 1932–35; present position, 1935–

WILSON, ELMER, *Instructor in Music*
Studied privately, 1911–18. Conductor of choral societies, state music festivals, orchestras, clubs, and bands, Massachusetts and New Hampshire. Instructor in music, 1935–36; present position, 1938–

WILSON, STANLEY E., *Instructor in Poultry Husbandry and Horticulture and Assistant Extension Poultryman and Assistant Extension Horticulturist*
B.S., University of New Hampshire, 1926. Principal, Farwell Grammar school, North Charlestown, N. H., 1926–27. Boys' and Girls' Club agent in Belknap county, 1927–36; present position, 1936–

WILSON, W. ROSS, *Agricultural Agent in Grafton County*
B.S., Cornell university, 1912. Instructor in dairying, 1912–16; assistant professor, 1916–17; present position, 1918–

WOOD, FRED W., *Technical Sergeant, Detached Enlisted Men's List, Assistant in Military Science and Tactics*
Enlisted in U. S. Army, 1908; promoted corporal, 1909; foreign service in Panama from 1914; promoted sergeant, 1916; returned to the United States, 1918; R.O.T.C., University of New Hampshire, 1921; promoted staff sergeant, 1924; promoted technical sergeant, 1937.

WOODRUFF, RUTH J., *Dean of Women and Assistant Professor of Economics*
A.B., Bryn Mawr, 1919; A.M., *ibid.*, 1920; Ph.D., Radcliffe, 1931. Assistant superintendent, Foulke and Long institute, Philadelphia, 1917; case worker, American Red Cross, Scranton, Pennsylvania, 1919; counselor, White-Williams foundation, Philadelphia, 1920–22; employment supervisor, public schools, Philadelphia, 1922–28; teacher, Northeast Evening high school, Philadelphia, 1923–28; Social case worker, Children's hospital, Boston, 1930; Social case worker, Massachusetts Memorial hospital, Boston, 1931; present position, 1931–

WOODWARD, KARL W., *Professor of Forestry*
A.B., Cornell university, 1904; M.F., Yale university, 1904. U. S. Forest Service as junior forester, forest examiner, assistant supervisor, and forest inspector in the northeast, southeast, and southwest of the United States; also special adviser to the Republic of San Domingo, 1904–15; present position, 1915–

WOODWORTH, HARRY C., *Professor of Agricultural Economics in the College of Agriculture and Agricultural Economist in the Agricultural Experiment Station*
B.S., University of Illinois, 1909; M.S., Cornell university, 1916. Study under social science research fellowship, Harvard university, 1929–30. High school teacher, Wells, Minnesota, 1909–13; County agent, Minnesota, 1913–15; operator stock farm, Wells, Minnesota, 1916–21; farm management demonstrator, 1921; regional chief, land use planning section, resettlement administration, 1935–36; Consultant, resettlement administration, 1936–37. Agricultural economist in the Agricultural Experiment station and farm management demonstrator in the Extension service, 1921–38; present position, 1938–

YALE, WILLIAM, *Assistant Professor of History*
Ph.B., Sheffield Scientific school, Yale university, 1910; M.A., University of New Hampshire, 1928. Private tutor, 1910–12; Standard Oil company of New York foreign service, 1913–17; special agent, department of state, 1917; American military observer, Egyptian Expeditionary Forces, 1918; expert on Arabian affairs attached to American commission to negotiate peace, 1919; technical adviser to King Crane Committee, 1919; shipping and tourist business, Egypt,

1920–23; lecturing, writing, farming, 1923–27. Instructor in history, 1928–33; present position, 1933–

ZIMMERMAN, OSWALD T., *Associate Professor of Chemical Engineering*
B.S.E. (Ch.E.), University of Michigan, 1929; M.S.E., *ibid.*, 1931; Ph.D., *ibid.*, 1934. Research chemist and chemical engineer, Simmons company, Kenosha, Wisconsin, 1929–30; research assistant, department of engineering research, University of Michigan, 1930–32; research chemist, school of dentistry, University of Michigan, 1932–34; research chemist and chemical engineer, Detroit Dental Manufacturing Co., Detroit, Michigan, 1934–35 and summers of 1937 and 38. Instructor of chemical engineering, University of North Dakota, September, 1935 to February, 1936; assistant professor of chemical engineering, *ibid.*, February to September 1936; associate professor of chemical engineering, *ibid.*, 1936–38; present position, 1938–

MAJOR ADMINISTRATIVE ASSISTANTS

ERMA L. ANDREWS, B.A., *Secretary to the Officer in Charge of Freshmen*
DORIS BEANE, A.B., *Secretary to the President*
EVELYN H. BRETTELL, *Secretary to the Dean of the College of Liberal Arts*
SADIE V. BURKE, R.N., *Nurse*
MAISIE C. BURPEE, *Secretary to the Director of the Agricultural Experiment Station and Extension Service*
E. PRESCOTT CAMPBELL, *Purchasing Assistant, Business Office*
LOUISE M. COBB, *House Director, Hetzel Hall*
ARLINE B. DAME, *House Director, Fairchild Hall*
ESTHER M. DUNNING, *House Director, Congreve Hall*
MILDRED M. FLANDERS, *Secretary to the Dean of the College of Technology*
ELISE F. HOLT, R.N., *Nurse*
LILLIAN B. HUDON, B.S., *Manager of the University Dining Hall*
HELEN F. JENKINS, *Secretary to the Faculty of the College of Liberal Arts*
EMMA M. KIMBALL, B.S., *Assistant Manager, University Dining Hall*
ELIZABETH B. KNOWLTON, *House Director, Commons*
HELEN H. LATIMER, *Gas Analyst, Agricultural Experiment Station*
FEDORA L. LESSARD, R.N., *Nurse*
ELIZABETH E. MCFADDEN, *Secretary to the Dean of the College of Agriculture*
ELIZABETH E. MEHAFFEY, *Assistant Librarian and Mailing Clerk, Agricultural Experiment Station*
ALBERTA R. MORRILL, B.A., *Secretary to the Dean of Men*
MAY E. PHIPPS, B.S. IN EDUC., *House Director, Smith Hall*
BEATRICE M. RICHMOND, *Cashier, Business Office*
BETTY G. SANBORN, *Secretary to the Director of Commercial Departments, College of Agriculture, and Seed Analyst*
MARCIA N. SANDERS, *House Director, Scott Hall*
ANNIE L. SAWYER, *Matron, Hood House*
SAMUEL STEVENS, *Laboratory Technician in Poultry Husbandry, Agricultural Experiment Station.*
GLADYS TASKER, *Assistant Registrar*
ROBERT B. TRUE, B.S., *Assistant to the Treasurer*
BETSEY VANNAH, B.S., *Secretary to the Treasurer*
CHRISTINE I. WARREN, B.S., *Assistant to the Director, News Bureau*
FRED L. WENTWORTH, *Manager of the Bookstore*

HISTORICAL SKETCH

IN the year 1856, Benjamin Thompson, a farmer of Durham, New Hampshire, made a will, by the terms of which he left his entire estate to the people of New Hampshire, on condition that the state should establish on his land a college of agriculture. The provisions of this will were not made public; no one knew of his proposed philanthropy; the document was laid away in his legal adviser's safe, and it remained sequestered there for the next 34 years.

At almost the same moment that the idea of an agricultural college occurred to Benjamin Thompson, a similar conception of a people's college, which, while not neglecting the subjects hitherto deemed essential, should include also in its curriculum courses in agriculture and the mechanic arts, came to Justin Smith Morrill, who now, after a career as clerk, merchant, and farmer, was representing a Vermont district in the national House of Representatives. Mr. Morrill's first bill, offered in 1857, was vetoed by President Buchanan because, in his opinion, its provision that the federal government should give an allotment of the public lands to each state which would set up a college for the benefit of agriculture and the mechanic arts, would cause friction among the states and would be unconstitutional. A similar bill, however, offered by him when the next administration had taken office, passed both houses, and was signed by President Lincoln, July 2, 1862.

Taking advantage of this national legislation, the state of New Hampshire in 1866 accepted the provisions of the act, took scrip in lieu of actual land, and selling this for $80,000, set this sum aside for the new college which it actually established at Hanover in conjunction with the already existent Dartmouth college in 1868. The president of Dartmouth was also president of the New Hampshire College of Agriculture and the Mechanic Arts, as the new institution was named, but there was a distinct board of trustees. The original program of study provided for a three-year course, and in 1871 the first class of three members was graduated. For more than 20 years the college remained at Hanover, an unappreciated branch of Dartmouth, with an average enrollment of about 25 students.

When, however, in 1890 Benjamin Thompson died and the terms of his will became known, the situation changed rapidly. That document had in the lapse of years acquired several codicils. The original bequest, indeed, remained unchanged, but the testator had further provided that if the state of New Hampshire did not accept his gift the land was to go to Massachusetts for the use of a college to be established there, and if that state should decline, to Michigan, with no restrictions of any sort. Michigan had by this time already established an agricultural college which Thompson was willing to aid. New Hampshire, however, acted promptly, the legislature making the necessary enactment in 1891. The

Thompson estate then amounted in land and securities to $300,000, but this was to lie untouched, at compound interest, for a period of 20 years. When, at last, in 1912 it first became available, it amounted to approximately $800,000.

In the meantime the state began its career as a sponsor of higher education by erecting a cow barn in Durham, and the enthusiastic senior class of the college came down from Hanover and had its commencement exercises before the first cattle were installed. As rapidly as possible after this, the state erected four other buildings: Thompson hall, Conant hall, Nesmith hall, and a building for the college shops. All these are still in use, the first named, little changed, still housing the offices of the president and other administrative officers, though the others have been enlarged and remodelled out of all recognition.

The most marked effect of the new environment was an increased enrollment, and in 1893, when the new buildings became ready for occupancy, there were 64 students, 10 of whom were women. There had been but one woman student in all the previous years of the college's existence. The class of 1893 held its commencement in the new Thompson hall, and from then on all classes were held in Durham. It was soon apparent that most of the women students and a good many of the men could not accurately be listed in either of the categories which the name of the institution suggested. When, then, in 1914, constant expansion made some administrative division essential, the college was divided into the three divisions: of Agriculture, Engineering, and Arts and Science, and the hitherto unclassified group was assigned to the Arts and Science division, which from then on grew much more rapidly than the other two.

Moved by its alumni since 1910 to follow the example set it in other states, and feeling that by now with its many courses and its more than 1,000 students another name would more nearly describe the fact than the one originally adopted for the institution, the legislature in 1923 renamed the college the University of New Hampshire, and reorganized it, creating within it the three colleges of Agriculture, Technology, and Liberal Arts, and followed this action in 1925 by providing permanently for its support in granting it an annual income amounting to one mill for each dollar of the assessed valuation of all the taxable property in the state, a sum which this year, 1938, amounts to approximately $548,000.

Today, in addition to the three colleges of the university, there are also an agricultural experiment station, and an agricultural extension service which reaches every town in the state; an engineering experiment station, a summer school, a graduate school, a summer school for zoölogical study on the Isles of Shoals, and a permanent forestry camp with buildings and four hundred acres of land in the White Mountains.

The university enrollment, though rather rigidly restricted to those in the upper three fourths of the graduating classes of the high schools of the state and to some others of high standing from schools outside the state, now amounts to more than 1,800.

OBJECTIVES OF THE UNIVERSITY

Born in the humanitarian and idealistic fifties, the University of New Hampshire is dedicated to the education of the state. It conceives its duty to be of use to all and not to youth alone.

If primarily an institution for resident teaching, it also enters every shop, every hotel, every manufactory, every farm, every home in the state, for it understands the field of education to be all-inclusive.

In its classrooms, laboratories, and shops it teaches with little regard for precedent whatever is desired, but it will also strive with equal zeal to make it possible for all to find that which is desirable.

It exists not for one group nor for one class, but for all, and its buildings and its campus it would make a meeting place and a rallying place where growth may come to all.

ORGANIZATION OF THE UNIVERSITY OF NEW HAMPSHIRE

The government of the University of New Hampshire is vested in a board of trustees, thirteen in number, of which the governor of the state, the commissioner of agriculture, and the president of the university are members *ex officiis*. In addition there are two members elected by the alumni of the university, one of whom must be a resident of New Hampshire; and eight members appointed by the governor.

Whereas the government of the university is in the hands of the board of trustees, within the university itself there exists the university senate, which is a representative body elected by and from the faculty, which has legislative jurisdiction in all matters of student government and educational policy. Within the senate is an advisory body known as the university council, which acts in an advisory capacity to the president, and serves as an executive committee for the consideration of urgent matters arising between meetings of the senate.

The university senate and council are the result of an attempt to democratize the government of the institution. In recent years the increase in the size of the faculty has tended to make faculty meetings unwieldy. Because of this fact, the idea of a university senate which would allow full representation by means of a smaller group was adopted. At present the senate is composed of the president of the university, the deans of the several colleges, various other administrative officers, and representatives from each department of instruction within the different colleges. Each department has approximately one representative for each three members. These departmental representatives are chosen by

ballot within the department, and all faculty members of the rank of instructor or higher are eligible for election. The democratic ideal represented by the senate is best illustrated by the fact that all eligible members of the faculty must sooner or later represent their respective departments in the senate, since no person is eligible for reëlection until all eligible faculty members of his department have served.

The university council is made up of the president of the university, the various administrative officers of the university and certain other officers and executives whose presence is felt necessary for the understanding of the matters brought before it. In addition the representatives of each college in the senate elect two of their members to serve on the council. The Agricultural Experiment station and Extension service are represented in the senate and council in the person of their director.

That part of the university devoted to resident teaching is composed of three colleges: the College of Agriculture; the College of Technology; and the College of Liberal Arts. Each of these has a dean as the presiding officer, and a faculty which conducts resident teaching work. The college faculties legislate in such matters as are referred to them by the university senate; administer the educational and internal life of their respective colleges within the limits prescribed by the president; and make recommendations to the university senate through the president.

Within the colleges are contained the instructional units of the university such as the department of English, the department of mathematics, and the department of botany. These departments usually have at their heads members of the faculty who have full professorial rank. Under them come other members of equal or lower rank, down to and including the rank of graduate assistant. Coördinate with the college faculties are the Agricultural Experiment station and the Extension service staffs.

The New Hampshire Agricultural Experiment station, a branch of the university, was established by the state, August 4, 1887, under an act of Congress of March 2 of that year. This and subsequent acts appropriated funds for conducting research work on agricultural problems in New Hampshire and throughout the nation.

The investigations conducted by the Experiment station vary according to their nature, some lasting through one season only and some covering a period of years. The projects of the station now include ninety-six fundamental investigations to determine the underlying principles of agricultural science and others of more practical application.

Appropriations from the state also enable the Experiment station to conduct a limited amount of state service work on agricultural problems. Advantage of the opportunities offered by the Experiment station has been taken by the state in connection with the tests of seeds, fertilizers, and feeding stuffs; and samples of these collected by the state department of agriculture are tested at the station laboratories each year, in accordance with legislative enactments.

Information relating to agricultural practices is supplied by the various

departments and entails a large volume of correspondence in answer to individual inquiries. Samples of soil are tested; plants and insects are identified; blood samples from hens are tested, and *post mortem* examinations of animals made.

The library of the Experiment station, which is open daily to students and visitors, contains complete files of all bulletins issued by the experiment stations in other states, all United States department of agriculture bulletins, and many other reports, bulletins, and records as well as books of agricultural value.

Publications of the station comprise 311 bulletins of the regular series and 54 circulars, 72 technical bulletins, 66 scientific contributions and 4 school bulletins. The publications cover a wide range of subjects and contain the information gathered by the experts of the station while working on the various projects. The bulletins are issued at regular intervals, and notices of publications are sent to all residents of New Hampshire requesting them.

What the university classes are to its students the Extension service is, only to a lesser degree, to the thousands who are beyond the reach of the classroom. Through it the teachings of the university and the findings of the Experiment station and the United States department of agriculture are now being carried to farms and homes throughout the state by a regularly established force of field workers. There are now ten agricultural agents in the ten counties, ten home demonstration agents, and ten boys' and girls' club agents, five assistant agents, and two agents-at-large. Farm management, dairying, forestry, soils and crops, poultry, horticulture, marketing, engineering, nutrition, social organization and recreation, clothing and home management demonstrations are also conducted, with specialists in charge.

The Extension service works largely through the New Hampshire Farm Bureau, and has a staff of 58 members. Its publications comprise 187 press bulletins, 219 circulars, and 55 bulletins. Notices of new bulletins are sent to a mailing list, which is maintained in coöperation with the Experiment station. Bulletins are sent free to all who request them.

Reading courses in fifteen subjects in agriculture and home economics, prepared by members of the resident college staff, are offered during the winter months.

In addition to the Agricultural Experiment station and Extension service, the university also includes an Engineering Experiment station which provides engineering and research facilities to all industries of the state. Through it are made available to the manufacturers, for the solution of their technical problems, the complete facilities of the College of Technology, including personnel, laboratories, and equipment. While not directly connected with the instructional departments, it provides training for selected graduate and undergraduate students.

DEGREES

The following degrees are conferred at graduation upon those who have successfully completed the regular courses leading to such degrees, and who have fulfilled all other requirements of the university:

GRADUATE SCHOOL—Master of science, master of arts, master of education, master of civil engineering, master of electrical engineering, and master of mechanical engineering.

COLLEGE OF AGRICULTURE—Bachelor of science.

COLLEGE OF TECHNOLOGY—Professional degrees of mechanical engineer, civil engineer, electrical engineer; bachelor of science.

COLLEGE OF LIBERAL ARTS—The degree of bachelor of science is conferred upon students graduating from the College of Liberal Arts who have completed a prescribed curriculum in coöperative hospital, general business, home economics, hotel administration, pre-medical, secretarial, social service, or who have majored in the general arts curriculum in any of the following departments: botany, chemistry, economics and accounting, education, entomology, geology, home economics, mathematics, physical education for women, physics, sociology, zoölogy.

The degree of bachelor of arts is conferred upon students graduating from the College of Liberal Arts who have majored in the general arts curriculum in any of the following: English, fine arts, French, German, government, Latin, Spanish, history, music, philosophy, psychology.

CERTIFICATE

COLLEGE OF AGRICULTURE—In the two-year curriculum, a certificate of graduation.

FACILITIES FOR INSTRUCTION

BUILDINGS FOR ADMINISTRATION AND INSTRUCTION

THOMPSON HALL, the general administration building, was built in 1893 and is named for Benjamin Thompson of Durham, the greatest individual benefactor of the college and university. It contains the office of the president and the offices of other general administrative officers, and also affords classroom and laboratory facilities for work in zoölogy and entomology.

CONANT HALL, also built in 1893, is named for John Conant of Jaffrey, an early and generous friend of the college. This building, originally constructed to house scientific departments, gradually became during the passage of years the headquarters of the department of chemistry. It was in this building that Professor Charles James accomplished his researches in the rare earths and minerals. Upon the completion of Charles James hall in 1929, this building was largely given over to civil engineering and geology.

NESMITH HALL, another one of the four original buildings erected in Durham in 1893, is named for Judge George W. Nesmith of Franklin, who was active as president of the board of trustees from 1877 to 1890. This small building was enlarged and renovated in 1933 and now with additional wings being constructed will house the plant and animal science departments.

SHOPS, originally constructed in 1893 and enlarged during and immediately after the World war, provide facilities for the department charged with the maintenance of the buildings and grounds. This building also houses the laboratories for instruction in machine shop, wood shop, forge shop, automotive laboratory, and pottery.

COLD STORAGE PLANT.—In another part of the Shops building there is a cold storage plant used by the department of horticulture for the fruit from the university orchards, and as a laboratory for practical instruction and research in the handling and storage of horticultural products.

MORRILL HALL, built in 1902, is named for Senator Justin Morrill of Vermont, sponsor of the Land Grant act. This building serves as headquarters of the College of Agriculture, and contains also the office of the director of experiment station and the extension service. In this building are the laboratories and classrooms of the departments of agronomy, animal husbandry, horticulture, poultry husbandry, forestry, and offices for agricultural extension and station staff members.

HAMILTON SMITH LIBRARY was erected in 1907 by means of a union of funds left by Hamilton Smith, of Durham, for the erection of a town

library building and funds from the Carnegie corporation and the State of New Hampshire. In the fall of 1937, two wings, each 40 feet by 70 feet and one story high, were erected on either side of the original structure. During the winter of 1938–39 the entire second floor was remodeled to include sound proofed music listening rooms, an exhibition gallery, and a fine arts reading and reference room. These building changes more than doubled reading and service areas and made possible greatly expanded and improved library service. The library serves not only the faculty and students of the university but also the residents of the town of Durham, being one of two such libraries in the United States so constituted. Because it is the library of the state university, it serves as far as possible the people of the state of New Hampshire.

(For further information on the library see page 62.)

DAIRY BUILDING, constructed in 1910, is arranged and equipped for purposes of dairy instruction. It contains equipment usually found in an up-to-date dairy and affords splendid opportunities for the study of all phases of the dairy industry.

DEMERITT HALL, provided in 1914, is named for Albert DeMeritt of Durham, a long-time friend and staunch supporter of the college. It serves as the headquarters of the College of Technology and affords lecture, recitation, laboratory, and office rooms for the departments of mechanical engineering, electrical engineering, physics, and architecture.

MURKLAND HALL, built in 1927, is named for Charles Sumner Murkland, president of New Hampshire from 1893 to 1903. It provides classroom and office facilities for the majority of the departments of the College of Liberal Arts. It houses the departments of economics and accounting, English, languages, mathematics, sociology, philosophy and psychology, history, and government.

CHARLES JAMES HALL, dedicated in 1929, bears the name of Charles James, professor of chemistry at New Hampshire from 1906 to 1928. This structure houses the department of agricultural and biological chemistry and the department of chemistry and chemical engineering. It provides lecture and recitation rooms and laboratories for instruction and research in both of these departments.

PETTEE HALL is a new three story building, constructed to replace the agricultural engineering laboratory destroyed by fire in 1937. It is named in honor of the late Dean Emeritus Charles H. Pettee. The building houses the departments of agricultural engineering, home economics, and military science.

TEXTILE AND CRAFT COTTAGE.—The Textile and Craft cottage is a small house arranged to afford opportunity to those wishing to develop leisure time activities by carrying on simple hand craft projects. The cottage is equipped with looms, rug frames, and tools and supplies for several types of work.

UNIVERSITY OF NEW HAMPSHIRE

Ballard Hall, originally constructed in 1905 and acquired by purchase in 1914, affords office and classroom facilities for the departments of education and music, accommodations for Christian Work, Inc., and offices for student organizations.

The Power Plant, erected in 1927, is equipped for heating the buildings of the institution and it is also used for experimental purposes by the students in mechanical engineering.

The Greenhouses, erected in 1928, provide facilities for botanical and horticultural research and instruction.

The Poultry Plant, consisting of several up-to-date houses and improved range facilities for chickens and turkeys, is operated for instructional and research purposes. Experiments are constantly in progress in nutrition, breeding, brooding, management, and diseases.

A special poultry pathology laboratory, maintained for diagnosis and research in poultry diseases, is available for student instructional purposes.

The poultry flock consists of Barred Plymouth Rocks, Single Comb White Leghorns and New Hampshires; also, representative units of Bronze, White Holland, and Bourbon Red turkeys, White Pekin ducks, and Toulouse geese.

The Dairy Barn, completed in the spring of 1932, provides accommodations for some 120 dairy animals. This unit consists of the following: main barn for 60 cows; wing for bulls, calves, and young stock; isolation barn; dry cow and young stock barn for 50 head; combine milk room; milk house, with equipment for cooling, bottling and storing milk, and for washing and sterilizing bottles and equipment.

The university dairy herd is made up of representatives of the Ayrshire, Guernsey, Holstein and Jersey breeds.

The Stock Barn is thoroughly equipped, and houses an excellent herd of purebred Shorthorns, several Herefords, small flocks of purebred Shropshire and Dorset sheep, Percheron standard-bred, thoroughbred and Morgan stallions.

The Piggery accommodates a herd of Chester White hogs.

RESIDENTIAL HALLS

President's House, a substantial, attractive building, was erected in 1904 to provide a residence for the president and his family.

Commons was erected in 1919, enlarged in 1925 and again in 1937. It contains the freshman dining hall, a faculty dining room, a cafeteria, a trophy and lounge room, rooms for meetings of student organizations, and provides on the third floor dormitory facilities for a limited number of undergraduate men.

Fairchild Hall, erected in 1916, honors Edward Thomson Fairchild, president of New Hampshire from 1912 to 1917. It is a brick structure

of colonial design and furnishes accommodations for 150 undergraduate men.

East and West Halls were erected by the United States government in 1918, in order to furnish housing facilities for troops in training at the college during the world war. These buildings have since been partitioned into moderate-sized rooms and provide desirable accommodations and comfortable quarters at low cost for 230 men.

Smith Hall was originally constructed in 1908 with funds made possible by the generosity of Mrs. Shirley Onderdonk of Durham, who made this provision as a memorial to her mother, Mrs. Alice Hamilton Smith. The original building and an annex constructed in 1918 furnish desirable rooming facilities for 68 women students.

Congreve Hall was built in 1920 with funds made available through the will of Mrs. Alice Hamilton Smith of Durham, and bears the name of a family intimately connected with Mrs. Smith's ancestry. The original building, a wing erected during the summer of 1922, and another wing completed in 1938, accommodate 160 undergraduate women.

Hetzel Hall, built in 1925, is named for Ralph D. Hetzel, president of New Hampshire from 1917 to 1927. It is the newest men's dormitory on the campus and accommodates 156 undergraduate men.

Scott Hall, completed in 1932, is named for Clarence Watkins Scott, professor of history at New Hampshire from 1879 to 1930. This building furnishes comfortable accommodations for 120 undergraduate women.

Elizabeth DeMeritt House, erected in 1931, named for Mrs. Elizabeth P. DeMeritt, dean of women from 1919 to 1931, maintained for practice in home management, is a modified Cape Cod cottage, thoroughly equipped with modern household devices and furnished to illustrate various types of treatment in keeping with style. It will house six resident students and two instructors. A play school for pre-school children is held at the house five mornings a week.

Charles Harvey Hood House, an infirmary erected in 1932, is the gift of Mr. and Mrs. Charles Harvey Hood of Boston. It was erected and will be maintained by funds presented to the trustees in 1930, the fiftieth anniversary of Mr. Hood's graduation from the University of New Hampshire. Hood house, designed and furnished in a cheery, homelike style, is unusually well equipped to care for sick and ailing students. It will accommodate normally thirty patients in both wards and private rooms. The office of the university physician and quarters for three trained nurses are also located in Hood house.

ATHLETIC FACILITIES

Lewis Fields, outdoor recreational center, dedicated October 10, 1936, in honor of Dr. Edward Morgan Lewis, president of the university from 1927 to 1936, include six fields for football, soccer, and lacrosse, and

four baseball diamonds for alternate use with some of the aforementioned, a first-class cinder track with a 220-yard straightaway and pits and runways for jumping and vaulting, fourteen composition and six clay tennis courts, concrete bleachers seating 1,750 spectators at baseball games and concrete stands seating 5,000 spectators at football and track and field contests. The entire equipment was built in coöperation with Federal work-relief agencies. Materials used in the construction of the main field stands were provided by alumni of the university as the first project of the Alumni fund.

Brackett Field.—The varsity baseball field on Lewis Fields is known as Brackett field, in honor of William H. L. Brackett, '14, prominent student leader of his college generation who died from wounds received during the world war.

Memorial Field, outdoor recreational center for the girls, provides opportunity for all the outdoor physical activities of the women's physical education program.

This area, the first gift of major importance from the alumni to the university, was dedicated on June 10, 1922, in memory of the eighteen New Hampshire men who lost their lives in the world war.

Memorial field was used by the university as a football field, for track meets, lacrosse games, and for men's physical education classes until the spring of 1937 when it was officially turned over to the women students.

Armory and Gymnasium, erected in 1906 and used until the fall of 1938 by the departments of physical education and athletics and military science and tactics, now accommodates the department of physical education for women.

University Field House, completed in the fall of 1938, adjoins the Lewis Fields stadium. The Field house provides opportunity for the development of baseball and track teams in the winter and spring. A temporary wooden floor and bleachers accommodating approximately 2,500 spectators are installed for basketball practice and games. The Field house also provides space for the indoor activities of the physical education program for men. Administrative offices, team managers' quarters, shower, locker and storage facilities are provided in a wing built on a lower level.

Swimming Pool, an outdoor pool completed in June 1938, is available for general swimming and classes of instruction in the physical education programs for men and women students. The water is scientifically treated through a filtration plant of modern construction. In the winter months the pool and an adjacent pond provide the opportunity for skating as a recreational activity.

OTHER FACILITIES

Lands.—The lands of the university total about 1,305 acres. Of this area about 154 acres are devoted to the campus proper and athletic

fields; about 257 acres are used for hay, tillage, orchards, and gardens; about 558 acres are forest, wood and brush land; about 300 acres are in pasture; and about 18 acres in ponds.

The Horticultural farm comprises about 20 acres of fruit trees, two to three acres of small fruits, chiefly strawberries, grapes, and raspberries, and several acres of vegetables and garden crops. In addition, there is maintained at the farm a display collection of some 450 varieties of bearded iris.

The orchard site is one of the finest in southern New Hampshire, and the soil, which is a stony, sandy loam, has made some of the plots exceedingly productive. Various long-time experiments are underway in these orchards, giving the student opportunity to study and observe trees under various cultural treatments. Nearly all of the important standard varieties of fruit are represented in the collection and in addition a number of the more promising new sorts. In the gardens an excellent collection of vegetable strains and varieties is grown annually. An apiary of 25 hives provides bees for pollination studies and class work.

The farm is well equipped with tractors, sprayers, power cultivator for the garden, and other modern implements. The packing plant which is maintained in connection with it is equipped with an excellent grader and other apparatus for the handling and packing of fruit. The cold storage plant described on page 56 is for use by this department.

Marine Zoölogical Laboratory.—In 1927 the university acquired the use of land on Appledore island, Isles of Shoals, including an excellent set of buildings for the establishment of a summer course in biology. From this experiment there has been developed the Marine Zoölogical laboratory of the University of New Hampshire. It is at the present time a complete unit within itself which offers adequate instruction in various phases of marine biology as well as courses in histology, embryology, comparative anatomy, and biology-education methods courses. The unit provides adequate housing and recreational facilities, and is particularly adapted for the work of senior or first-year graduate students interested either in teaching, experimental work in biology, or in preparation for medical school.

The Isles of Shoals is a group of small islands nine miles off shore from Portsmouth in an area famous for its abundance of marine life. Much of the work, therefore, is conducted out of doors.

The laboratory plant itself provides ample classroom and laboratory space. There are supplies for all types of ecological and experimental work, including glassware, chemicals, stains, lanterns for projecting slides, and a complete set of microscopes and microscopic equipment for all students. A library sufficient for all the work offered is transported from the university each summer to the Shoals. Boats for dredging and for ecological study are available, together with the necessary apparatus. Living facilities are provided by dormitories, a faculty house, and a mess hall.

University Forest.—The college owns a tract of 50 acres of old-growth timber and 500 acres of second growth. A nursery for the growing of seedling forest trees has been established. The University forest is also used extensively as a laboratory for forestry students.

Forestry Summer Camp.—The forestry summer camp is at Passaconaway, New Hampshire. Here the university has a tract of 400 acres of timberland, on which are examples of most of the northern forest types. The property is surrounded by the White Mountain National forest, which makes available to the school more than half a million acres of the finest woodlands in the East. Students are housed in an attractive wooden building, formerly a summer hotel, with 20 sleeping rooms, a large dining room, and a comfortable lounge suitable for lectures, study, and reading. Drafting rooms, laboratory and darkroom facilities are being added.

The boundary of a national game area of some 60,000 acres is less than half a mile from camp, and the Bartlett Experimental forest is only a few miles away. In addition various national forest operations are being carried on near enough to serve for purposes of instruction.

Recreational activities include swimming, fishing, tennis, and mountain climbing. There are 50 mountain peaks within a 10-mile radius of the camp, on most of which there are trails. Bartlett, Conway and North Conway villages are easily accessible.

Museum Collection.—Though the university has no museum, there are several collections housed in various buildings. At present, specimens are being collected to illustrate the zoölogy, geology, entomology, Americana, etc., of New Hampshire, and New Hampshire collectors and naturalists are invited to make the university their permanent depository.

The Pottery.—The pottery is maintained and operated by the League of New Hampshire Arts and Crafts and was organized to teach craftsmen to make pottery which they could sell in the league shops throughout the state. As the principal clay deposits of New Hampshire are in this section of the state, a site was sought in Durham and the university offered to assist. It is housed in the Shops building.

The Hamilton Smith Library.—The library at the University of New Hampshire, known as the Hamilton Smith library, was formed through an agreement reached in 1907 with the town of Durham, and includes the collections of the university and those of the former Durham Public library, the Durham Library association, and the New Hampshire Agricultural Experiment station. The Hamilton Smith library building, erected in 1907, is described on page 57.

The library collection now consists of 100,000 bound volumes, and about 650 periodicals are received currently. The library is an official depository for United States government publications and, as such, receives most publications so available. While the major part of the book collection is housed in the main library building, certain depart-

mental collections have been established in other buildings on the campus, including the Experiment Station library in Morrill hall, the Chemistry library in James hall, and the DeMeritt hall library, which contains the principal material relating to the various branches of engineering, architecture, and physics. Other smaller collections are housed in departmental offices, and are to be found listed in the *Library Handbook*. Noteworthy special collections in the main library include the New Hampshire collection of some 2,000 volumes, the Amoskeag collection, consisting largely of the labor and production records of the old Amoskeag Manufacturing company, the Mary P. Thompson collection, and the fine arts collection. Recently, by the establishment of small nucleus book collections in women's dormitories, a beginning has been made looking towards what is hoped will develop into well-equipped dormitory libraries.

During 1938 the university received the Carnegie college music set comprising about 1,000 records, 250 books and miniature scores, a fine phonograph, album shelf and index. These have been installed on the second floor of the library as a part of the art center being organized there. Three sound-proof listening rooms are available here, and the student may listen without disturbance to the best in recorded music, may browse through books on the arts, and may see and study permanent and loan exhibitions of pictures and other objects of art.

The library serves not only faculty and students, but also the townspeople of Durham. In addition, as much service as possible is given to the people of the state through coöperation with other libraries. Incoming freshmen are instructed in the use of the library by the staff in conjunction with the faculty of the department of English.

Aside from a small proportion of the collections restricted to use in the library building, all books may be drawn for one or two weeks, with the privilege of renewal, except on new popular works. Fines on overdue books are charged at the rate of two cents a day. In the reserved book room books may be withdrawn for overnight only, subject to a fine of ten cents an hour for late return.

The library is open during the college session from 8 A.M. to 10 P.M. on week days, and from 2 P.M. to 6 P.M. and 7 P.M. to 10 P.M. on Sundays. In the summer session and in vacations the hours are somewhat shorter. A complete statement of library rules is given in the *Library Handbook*, which is distributed free of charge. The library also publishes a free monthly leaflet, the *Library Lantern*, giving annotations and evaluations of new books.

GENERAL INFORMATION

Reserve Officers Training Corps.—Recognizing in military training values making for the physical, mental and moral development of the individual and a future safeguard for the nation, the university maintains two units of the Reserve Officers Training corps. This corps comprising units at 125 prominent educational institutions throughout the country, organized by Act of Congress in 1862 in the midst of the Civil War, reorganized in 1916 and again in 1920 as a result of the experience of the world war, provides systematic military training for school and college students and trains specially selected students to become officers of the Reserve corps of the army.

While the War department supervises the training, details officers and non-commissioned officers of the Regular army as instructors, and loans the necessary equipment, students undergoing this instruction and who are members of the R.O.T.C. are in no wise members of the military forces of the government. They remain civilians and, as regards obligations to serve the government, are in the same category as students not members of the R.O.T.C.: that is, enrollment in the R.O.T.C. involves no additional obligations as to service.

The cadets wear, while at military instruction, a uniform furnished by the government. They are put to no expense other than the purchase of one or two textbooks.* Students (freshmen and sophomores) pursuing the basic course are issued attractive uniforms of good quality; advanced students (juniors and seniors) purchase their uniforms with an allowance provided by the government. This uniform is suitable for use after graduation upon the student's becoming a reserve officer.

Military science is a required course for all male students, not especially excused, who are members of the freshman and sophomore classes. Students of the Colleges of Liberal Arts and Agriculture are assigned to the infantry unit. Students of the College of Technology are assigned to the coast (heavy and anti-aircraft) artillery unit. At the conclusion of the first two years, those students who elect, and who are considered especially qualified, are given the opportunity to continue with the advanced course, subject to congressional limitations as to numbers. Students completing four years satisfactorily are commissioned in the Officers' Reserve corps of the United States army.

Both the coast artillery and the infantry courses include military fundamentals. The object of this training is to inculcate habits which

* A deposit of $15 is required of each student having military equipment in his possession, whether registered for military science or not. At the end of the academic year or upon a student's severing his connection with the university this deposit will be refunded to him upon the satisfactory return to the university of all military property loaned except that a reasonable deduction will be made to cover any damage beyond natural wear and tear or for the loss of any of the equipment.

make for success in civil as well as military pursuits; physical stamina, good carriage, courtesy, punctuality, neatness in dress and person, attention to duty, high personal integrity, and loyalty.

In addition, the coast artillery course covers the construction, use and care of artillery material, heavy guns, coast and anti-aircraft gunnery devices and mortar transportation. To the engineering student this course offers, apart from the military training, an excellent opportunity to observe practical applications of his classroom work and to enlarge his view of the engineering field.

The infantry course covers the organization, equipment, tactics and administration of the basic and numerically greatest arm of the service. This course stresses theoretical and practical knowledge of personnel problems and emphasizes leadership.

Advanced students (juniors and seniors) who elect and are selected to continue with the third and fourth years, and who fulfill the required conditions including attendance at the prescribed summer camp, are allowed commutation of subsistence, a uniform allowance, travel expenses to and from camp as well as a per diem allowance while attending camp. The cash value of these for the two years is, at present, about $200. The student is not bound to remain in college nor is he bound to any military service during his course or thereafter. He is required, once having enrolled for the advanced course, to complete it as a prerequisite to graduation, and to observe the rules and regulations governing the corps.

The summer camp, of six weeks' duration, is normally held at the end of the junior year. Here opportunity is offered to meet students of other colleges. The courses taken on the campus are elaborated upon with special attention to the practical side. As the student is furnished an appropriate uniform for wear during this period, his only expense is for such personal items as he may wish to make. The Regular army officers in charge insure proper healthful living conditions, including wholesome food, as well as proper discipline and a healthy moral tone. Medical officers guard the student's health and athletics are encouraged. These camps offer the student scope to enlarge his experience while occupied in activities, mental and physical, that minister to his development.

Bureau of Appointments.—The University bureau of appointments assists seniors and alumni to secure permanent positions after graduation. It corresponds with and interviews school superintendents, personnel managers of industrial concerns, institutional managers, and others who employ college graduates, calling to their attention those seniors and alumni who are seeking positions. The bureau also assists in finding opportunities for men students for employment in and about the village of Durham.

Vocation Days.—For the benefit of the students, the university conducts for three days each year, called Vocation days, a series of meetings to give the student authoritative information about both the tech-

nique of job getting and some of the fields open to the college graduate. In 1939 the visiting speakers discussed manufacturing, social service, welfare work, retailing and merchandising, banking and credit work, engineering, office and secretarial work, home economics, agriculture, sales, teaching, hotel management, personnel administration, and accounting.

HEALTH SERVICE.—The University Health service includes a university infirmary known as Hood house (for a detailed description of this building see page 59), a university physician, and a staff of registered nurses. The object of this organization is to protect, improve and maintain the health of the students. There is individual health guidance through personal conferences, treatment, and coöperation with family physicians.

The services of the university physician are confined entirely to illness that may be cared for by office calls, dormitory visits, and infirmary confinement.

Injury or illness requiring X-ray examinations, hospital confinement (other than in Hood house), the services of specialists, operations, ambulance service or special prescriptions, are at the expense of the student. For any illness requiring a special nurse, the student pays for such service.

Injuries to athletes connected with training or disabilities incurred in practice for or participation in freshman or intercollegiate athletic contests are attended by the university physician so far as practicable. For those requiring medical attention other than above, the university may assume a portion of the expense, but only upon the approval of the president.

Students while at Hood house are charged $1.00 a day for its use. Office calls are made at Hood house between the hours of 8.00 A.M. and 5.00 P.M. A charge of $1.00 will be made for all calls at Hood house between the hours of 5.00 P.M. and 8.00 A.M. The fee for such calls is cancelled by the university physician if he finds that the onset of the illness or injury occurred at such time as to make necessary a call during this period. When a student, who has been attended by the Hood house staff, is asked to return for treatment or observation after hours, no fee will be charged.

CHRISTIAN WORK.—Christian Work, Incorporated, is the organization through which general religious activities on the campus are stimulated. The advisory board for this undertaking consists of representatives from the various church denominations, the state Y.M.C.A. and Y.W.C.A., the New England Student Christian movement, the university, the alumni, the faculty, and the students. The board employs a staff for the direct leadership of the work. The program is supported by voluntary contributions from the above groups together with gifts each year from parents of the students and other interested friends. For a statement of the objectives and activities of this organization, see page 73.

THE FACULTY CLUB.—The University Faculty club is an organization established in 1920 by members of the faculty of the University of New Hampshire to stimulate their social and recreational interests. Membership is limited to members of the institutional staff.

UNIVERSITY FOLK CLUB.—The University Folk club is an organization for all women connected with the university either as members of the staff, as graduates, or through their families. The meetings are held the second Tuesday of each month, from October through May. Although the purpose of the Folk club is primarily social, it has a gift fund for women students, administered by the dean of women and a committee from the club.

STUDENT ORGANIZATIONS

STUDENT GOVERNMENT

STUDENT COUNCIL.—The Student council is an organization of men students which endeavors to act as follows: (a) as a liaison body between the university administration and the students, in which capacity it makes recommendations to the administration; (b) as a representative body seeking to promote the best interests of the university; (c) as a stimulus in creating student leaders. Members of the council are elected by ballot each spring. The president of the Association of Women Students meets with the Student council during consideration of matters pertaining to both men and women.

ASSOCIATION OF WOMEN STUDENTS.—The purposes of this association, as stated in the constitution of the organization, are as follows: (a) to promote a sense of individual and collective responsibility among the women students in maintaining the highest standards of university life; (b) to promote the highest standards of honor and integrity in all matters of personal conduct; (c) to enact and enforce laws in all matters operating for the welfare of the women students and which do not fall under the immediate jurisdiction of the University administration; (d) to encourage active coöperation in the work of self-government among the women of the university.

CASQUE AND CASKET.—A society which is composed of students of the upper classes, having an equal number of representatives from each fraternity. Its duty is to regulate the campus interfraternity relations.

PAN HELLENIC.—An organization designed to transact all business of common interest to the women's fraternities, including the regulation of the rushing period.

ASSOCIATED STUDENT ORGANIZATIONS.—An organization composed of societies or groups organized for the purpose of securing a satisfactory administration of their funds. Membership is voluntary on the part of the individual organizations with the exception of those receiving benefits from the student activity tax.

A committee of six appointed by the president of the university advises with organizations relative to the budgeting and expenditure of monies resulting from the collection of the student activity tax, approves the budgets presented, and makes recommendations to the president of the university relative to the general administration of the tax. This committee includes undergraduates and faculty members.

ADVISORY COMMITTEE ON ATHLETIC AWARDS.—The advisory committee on athletic awards, consisting of three undergraduates and three

faculty members elected by the student body, and the director of athletics, shall award recognized men's athletic insignia, shall consider and recommend action on all proposed insignia to be awarded to men athletes by the university, shall approve and ratify all athletic records made by university athletes in intercollegiate competition, shall establish a system for the selection and shall select all managers of varsity and freshman sports and cheer-leaders, and shall serve as agency of advice to the senate committee on athletics on all matters of athletic interest as the latter committee may request.

Women's Athletic Association.—Every woman student automatically becomes a member of the Women's Athletic association at the time of registration. Opportunity is given for participation in extra-curricular team sports and individual athletics, and for leadership in these activities. The association owns a cabin at Mendum's pond that is available for outings. It also sponsors social events, and has recently added to the program an hour of dancing for men and women students twice weekly, with instruction for beginners.

ACADEMIC HONORARY, PROFESSIONAL AND DEPARTMENTAL SOCIETIES

Phi Kappa Phi.—A national honorary fraternity founded at the University of Maine in 1897 for the purpose of promoting the highest grade of scholarship. A chapter was established at the university in 1922. Its membership is taken from the highest ranking members of the senior class. New members are elected at the beginning of the first and second semesters.

Alpha Chi Sigma.—A professional fraternity with chapters in various colleges and universities. Members are elected from high ranking students whose major work is in the department of chemistry. Established on this campus in 1911.

Alpha Kappa Delta.—A national honor society for high-ranking students in sociology. Established on this campus in February, 1939.

Alpha Sigma.—An organization established in 1925, whose membership is taken from high ranking students in architecture.

Alpha Zeta.—A national professional honor fraternity of agricultural students, organized at the university in 1903. Membership is honorary and is restricted to students obtaining high class standing or to graduates who have shown marked ability in agricultural study and research.

Branch of the American Society of Civil Engineers.—An organization of upperclass students in civil engineering. Regular class meetings are held for the purpose of investigating by reading and discussion various engineering topics of the day.

Classical Club.—This society, established in 1927, takes its members from students interested in Latin and Greek.

Economics Club.—An organization composed of high-ranking students in business, economics or the secretarial course. The society provides an opportunity for a discussion of current economic problems of special interest to the members.

Branch of the American Institute of Electrical Engineers.—A student organization conducted in accordance with the by-laws of the Institute, whose meetings are given a place on the student's class schedule. The purpose of the organization is to promote interest in electrical engineering, to foster acquaintance and good fellowship among the faculty and students in the department of electrical engineering.

Forestry Club.—This organization was founded in 1915 and is intended to promote interest in forestry and to bring forward information that cannot be obtained in the classroom. A number of speakers are presented each year in addition to which outings and instruction trips are held under the auspices of the club. Membership is open to forestry students.

French Club.—This society was established in the spring of 1919 to offer competent students an opportunity to acquire a speaking knowledge of the French language and to stimulate an interest in the intellectual life of France.

Gamma Kappa.—An organization, established in 1933, whose membership is taken from high ranking students in geology.

The Graduate Science Society.—The Graduate Science Society is made up of graduate students and faculty members who are engaged in scientific research at the university. The organization seeks to promote good fellowship and the exchange of ideas in science through the presentation of papers by both its members and by research investigators of other institutions. It was founded in 1927.

International Relations Club.—One of over 450 chapters scattered throughout the world, the purpose of which is to increase the members' knowledge of international affairs through discussion, lecture, reading, conference, and association with others. The local chapter was organized in 1925 and is open to all students who are interested, upon demonstration that they can meet certain prescribed qualifications. The Carnegie endowment for International Peace furnishes the club with a library on current questions, also issuing a fortnightly summary of international events which is distributed gratis to the members.

Kappa Delta Pi.—A chapter of the national educational society, organized from a local group formed on this campus in 1926.

Branch of the American Society of Mechanical Engineers.—An organization of upperclassmen in mechanical engineering. Holds regular class meetings for the presentation and discussion of engineering papers by members and by visiting engineers.

STUDENT ORGANIZATIONS

MINNESAENGER.—All members of the university are eligible for membership in *Die Minnesaenger;* this German club has frequent meetings for informal German singing, talks, and pictures; meetings are also held fortnightly for informal German conversation.

PHI LAMBDA PHI.—An honor society whose members are students of high standing in physics.

PHI SIGMA.—A national honor society for students doing major work in biology who have completed a certain number of courses with honor grades. Established in 1915. National affiliation 1926.

PLANT SCIENCE CLUB.—Formed in 1927, the Plant Science club is a discussion group composed of faculty members and graduate assistants of the departments of botany, forestry, horticulture, agricultural chemistry, and agronomy. Monthly meetings are held and reports made on research experiments being carried on by the members.

PSI LAMBDA.—A society composed of high ranking students in home economics. Established in 1926.

PSYCHOLOGY CLUB.—This club was organized in the spring of 1938. It provides, through student participation, instruction trips and occasional outside speakers, opportunities for gaining a knowledge of a wide range of psychological topics. Membership is open to any member of the student body, university faculty or staff who earnestly desires to add to his store of psychological knowledge.

SCABBARD AND BLADE.—A national honorary military fraternity. The New Hampshire company (Company F, Sixth Regiment) was organized in 1926.

SOCIOLOGY CLUB.—Reorganized in the fall of 1937, the Sociology club provides an opportunity for informal discussions of social theories, the effects of social changes, and the factors involved in current social problems. Speakers, outstanding in their fields, meet with the group from time to time. Membership is not dependent on the student's major subject.

SOCIAL HONORARY SOCIETIES

BLUE KEY.—Blue Key is a senior honorary society, the membership of which is limited to men who are recognized leaders in undergraduate activities. New members are elected in the spring of their junior year.

MORTAR BOARD.—A chapter of the national senior women's honorary society, Mortar Board, was established at the University of New Hampshire, February, 1938, with the purpose of stimulating initiative among the underclass women, fostering a spirit of friendship, and upholding the traditions of the university.

Members are chosen in the early spring on the basis of scholarship, leadership, and service, from the members of the senior class.

UNIVERSITY OF NEW HAMPSHIRE

THE SENIOR SKULLS.—The Senior Skulls is an honorary organization, the purpose of which is to promote college spirit and to encourage friendly relationship between fraternities and classes. Members are elected each spring by the society from the junior class.

DRAMATIC, PUBLIC SPEAKING AND MUSICAL ORGANIZATIONS

MASK AND DAGGER.—This is a dramatic club which aims to make a practical study of the drama and to present each year three plays on the stage of the "little theater" in Murkland hall. Membership in this society includes students who have participated in plays or who have assisted in stage production.

TAU KAPPA ALPHA.—A national honor society which takes its membership from students who have been outstanding in debate and oratory. Established on the New Hampshire campus in 1925.

GILBERT AND SULLIVAN SOCIETY.—This club, established in 1936, aims to stimulate interest in light opera, and to produce one Gilbert and Sullivan opera each year. Membership includes all students who have participated in a production in the cast, orchestra, ballet, or as stage technicians.

GLEE CLUB.—The Glee club is divided into two organizations, one for men and one for women. Membership in the club is open to all undergraduates interested in choral singing who fulfill the requirements of a try-out. The club presents programs of choral singing several times each year.

UNIVERSITY BAND.—This is a military and concert organization whose membership is taken from members of the university regiment and selected students. Academic credit is given for successful completion of each semester's work. The band plays at various university functions and games.

STUDENT PUBLICATIONS

THE GRANITE.—An illustrated annual published by the Junior class.

THE NEW HAMPSHIRE.—A semi-weekly newspaper presenting undergraduate and alumni news, published by an editorial board composed of students.

THE NEW HAMPSHIRE STUDENT WRITER.—The *New Hampshire Student Writer* is a collection of the best undergraduate verse and prose published annually under the supervision of the department of English. This is a paper-bound volume of about 140 pages issued in the second semester and placed on sale at the university book shop. Contributions may be submitted by members of all four classes.

STUDENT ORGANIZATIONS

RELIGIOUS ORGANIZATIONS

CHRISTIAN WORK INCORPORATED.—The object of the organization is to facilitate the coöperation of various persons and groups of persons interested in striving to develop and to maintain vital religious life. Interested students become members of the Student Christian Movement, which is a fellowship of those who believe that a better life, both personal and social, is possible for all men.

Among the activities of the group are Sunday evening programs at the Community church, weekly student-faculty teas, vesper services, lectures, conferences and social meetings. The staff of Christian Work Incorporated coöperates with the pastor of the Durham Community church.

MENORAH SOCIETY.—A local chapter of the Intercollegiate Menorah association for the study and advancement of Jewish culture and ideals. Organized in 1928.

NEWMAN CLUB.—The Newman club is a Roman Catholic club which fosters, in order of importance, the spiritual, intellectual, and social interests of the Catholic students of the university; welds them into a common union; assists the university and its students whenever possible; and promotes by Catholic action through the Bishop of the diocese a more fervent and informed Christian life. Membership is open to all Catholic students, men and women. Roman Catholic services are held every Sunday morning at ten o'clock in the auditorium in Murkland hall, the first Sunday of each month being the monthly communion Sunday for the Newman club. The Newman club at the university was organized in 1926.

INTEREST GROUPS

BARNACLES.—The Barnacles is composed of students and faculty of the university marine laboratory on the Isles of Shoals. The Barnacles' chief object is to maintain the motivation derived from the experiences enjoyed at the Shoals. Membership can be obtained only by attending the summer session of the marine laboratory.

CHESS CLUB.—This club, established in 1938, is open to all students and members of the faculty interested in chess.

ERATO.—A society composed of students interested in the study and writing of poetry.

FLYING CLUB.—The Flying club was organized in 1931 as the Glider club. Its aim is to foster interest in flying both powered and motorless aircraft as a sport. The club maintains a Waco primary glider. Membership is open to all students.

FOLIO.—A society composed of students interested in creative writing, particularly the short story and essay.

LENS AND SHUTTER CLUB.—This club offers opportunity for membership to students and other members of the university who are interested in photography.

LIBERAL CLUB.—This organization, established in 1938, is composed of students who are interested in the consideration of political, social and economic problems.

N. H. CLUB.—Membership in this organization is open to all men who have earned varsity athletic letters.

OUTING CLUB.—The Outing club, which was established in 1915, sponsors all out-of-door activities, especially mountain climbing and skiing, and conducts the annual Winter Carnival, and the University Horse Show. The club owns two cabins, one in Franconia Notch which will accommodate twenty, and another at Mendums pond, nine miles west of Durham on the Concord road. Besides these cabins the club has the use of a third in Pinkham Notch. Throughout the school year there are weekly trips to the mountains for climbing or skiing. All students, alumni, and faculty are eligible for membership.

THE SPHINX SOCIETY.—A society organized in 1932 for the purpose of promoting good will between this university and those institutions which send athletic teams to this campus. The Sphinx society meets and houses visiting teams, aids their managers and coaches, conducts the members of the teams about the campus, explaining points of interest, and arranges meetings with any acquaintances visitors may have here. The membership of the society is limited to one member of the junior class selected from each fraternity and one from Cauldrons.

UNIVERSITY 4-H CLUB.—This organization is composed of students who have been engaged in boys' and girls' club extension work.

YACHT CLUB.—Yacht club, open to students (active membership), faculty, and alumni, was organized in 1936, to further the sport of intercollegiate racing and to teach its members the art of sailing.

SOCIAL ORGANIZATIONS, FRATERNITIES AND SORORITIES

ASSOCIATION OF WOMEN DAY STUDENTS.—An organization to further center the interests of commuting women in the cultural and social activities of the university. This group is represented on the Council of the Association of Women students.

CAULDRONS.—The purpose of Cauldrons is to give the men students of the university who, for financial or other reasons, are not fraternity members, the advantages of fraternity organization. The society has been granted representation on the Student council, and Sphinx, and the right to participate in intramural sports. No freshman may be taken into membership until the conclusion of the fraternity rushing season. Any member may resign at any time to become a member of a fraternity.

OMVILA CLUB.—An organization of women students living off campus in Durham. The purpose of this organization is to provide group social life for its members and representation in broad campus activities.

The following fraternities and sororities have chapters on the New Hampshire campus. The dates listed indicate (1) date of founding as local fraternity (in parentheses) and (2) date of granting of national charter.

Fraternities.—Kappa Sigma, (1894) 1901; Sigma Alpha Epsilon, (1894) 1917; Theta Chi, (1903) 1910; Lambda Chi Alpha, (1906) 1918; Alpha Tau Omega, (1907) 1917; Phi Mu Delta, (1914) 1918; Pi Kappa Alpha, (1921) 1929; Sigma Beta, 1921; Phi Alpha, (1922) 1924; Theta Kappa Phi, (1922) 1923; Alpha Gamma Rho, 1924; Phi Delta Upsilon, 1924; Tau Kappa Epsilon, (1926) 1932.

Sororities.—Chi Omega, (1897) 1915; Alpha Chi Omega, (1913) 1924; Alpha Xi Delta, (1913) 1914; Phi Mu, (1916) 1919; Kappa Delta, (1919) 1929; Theta Upsilon, (1926) 1930; Pi Lambda Sigma, 1929.

FEES AND EXPENSES

Estimate of Freshman Expenses

	High	*Average*	*Low*
Room (Dormitories) *	$120.00	$80.00	$64.00
Board (at Commons)	200.00	200.00	200.00
Tuition †	150.00	150.00	75.00 and a tuition grant
Uniform ††	.....	.....	.....
Books	35.00	35.00	35.00
Laundry	35.00	20.00	15.00
Incidentals §	100.00	60.00	50.00
Total	$640.00	$545.00	$439.00
Expenses, First Semester	$340.00	$275.00	$230.00

Tuition—Four Year Students.—Tuition is $150 a year for residents of New Hampshire and $250 for non-residents. Tuition is payable in advance in two equal installments, one on the first day of each semester. Students who find it difficult or impossible to procure the necessary funds for payment on the regular registration day may make arrangements acceptable to the treasurer for a series of payments during a semester.

A commencement fee of $5 is charged upon graduation. Charges will be assessed for extraordinary breakage or damage. No laboratory or course fees are charged. Payment of the tuition entitles the student (four-year, two-year) to admission to all home 'varsity athletic contests.

Tuition—Two-Year Students.—Tuition for two-year students in agriculture is $75 for residents of New Hampshire and $175 for non-residents. Tuition is payable in advance in two equal installments, one on the first day of each semester.

* See bulletin on residential halls.

† If not a resident of New Hampshire add $100 to high and average and $175 to low. If a resident and not a holder of a tuition grant, add $75 to low.

†† Uniform for members of the Reserve Officers' Training corps is provided by the Federal government. A deposit of $15 is required of each student to whom military equipment is issued.

§ Expenses for travel, clothing, etc., vary with the individual student, and should be added. The Student Activity tax, authorized by vote of the undergraduate students, with the approval of the Board of Trustees is paid by each undergraduate to a duly authorized delegate of the Associated Student Organizations at the time of registration. The university business office will require evidence of the payment of the tax before registration receipt is issued. The revenue from the tax provides each student with *The New Hampshire*, semi-weekly newspaper; *The Granite*, university annual; student government and class activities. During 1938–39, the tax was $3.65 for men students and $4.50 for women. Every student registered for physical education for men is required to pay $1.00 each semester as a locker deposit and for towel service.

ADVANCE TUITION PAYMENT.—An applicant for admission who is a resident of New Hampshire is required to remit $10 with his application; one from outside the state is required to remit $25. If the applicant is admitted to the university, his advance payment will be applied to the first semester's tuition; if he is not admitted, his advance payment will be returned. The advance payment of a student, who is admitted but does not enter, will not be returned.

BOOKS.—Students may purchase books, drawing instruments, materials, etc., at the University bookstore in Thompson hall.

ROOMS.—The university has three dormitories for women and five for men. *Men of the upper classes may reserve rooms in Hetzel, Commons, and West halls. East and Fairchild halls are reserved for men of the freshman class. Certain rooms in Hetzel hall, not taken by upperclassmen, may also be available to freshmen.* All rooms are heated, lighted and furnished. Bed linen, quilts and towels, however, are provided by the individual student. Each women's dormitory is equipped with a laundry. A service room is provided in each dormitory where grills and irons may be used with safety. Prices range from $64 to $120 a year. Applications for rooms in the dormitories should be addressed to The Registrar, University of New Hampshire, Durham.

Students living in university dormitories are required to sign room contracts covering the college year.

A five-dollar ($5.00) room deposit must accompany each application, this deposit to be forfeited if the room accepted is not occupied by the applicant. The deposit is held as a guarantee against breakage and will be returned at the close of the year or upon withdrawal.

Room rent is payable in advance in two equal installments, one not later than August 1 and one on registration for the second semester. Rooms reserved will be held only until August 1 unless one-half of the annual rent is paid before that date.

Rooms paid for and not occupied one day after registration may be declared vacant and the room rent returned, unless the individual holding the reservation makes a written request to the registrar to hold the room until a later date. The advance payment for the room will not be returned to those making this special request. No room will be reserved more than ten days after the registration date. Early application is necessary in order to secure a choice of rooms. Rooms in private dormitories or families may be secured for about the same prices as for those in college dormitories.

Women students, unless living at home, are required to room in one of the women's dormitories, or in approved houses. A competent house director is in charge of each women's dormitory.

BOARD.—A dining hall is operated and supervised by the university for the accommodation and benefit of the students. All freshmen, whose homes are not located in Durham, are required to board at the university dining hall. The aim of the compulsory regulation is to

insure a broad fellowship in the class, and to safeguard the health of the first-year students by offering skilled dietetic oversight in the selection and preparation of their food. The dining hall is equipped with the best appliances for cooking and serving on a large scale, and is subject to constant sanitary inspection by the university physician. Board is $200 for the college year, payable $100 at registration for each semester.

The dining hall is not operated for profit. Savings made possible by reduced costs of operation are passed along to the students in the form of a reduced board charge in the second semester.

A cafeteria is open to all students of the upper classes who may desire to take advantage of the low price and the high quality of food available at the university dining hall.

Checking Accounts.—Students are earnestly urged to arrange checking accounts in their home banks or to place money on deposit in the business office until needed, in order to avoid possible loss resulting from keeping on hand considerable sums of money. Such banking arrangements will also facilitate payment of registration bills which are strictly due and payable on registration day. The business office will accept and cash student checks.

Self-Support.—A great many students earn their education in part by means of their own labor during summers and while in college.

All students and prospective students are advised, however, to carefully survey their individual physical strengths and scholastic aptitudes before committing themselves to the arduous combination of intensive study and part-time employment.

Students are urged not to count too much upon earning their way the first year, and should be sure of at least $400 *from other sources, a low estimate of the first year's expense. Inquiries from men concerning self-support should be addressed to the bureau of appointments, Durham, N. H.*

Student Employment Committee.—In order to insure an equitable distribution of university part-time employment, a committee of the faculty is charged with the responsibility of rating students for employment. The committee accepts no responsibility for the annual placement of students on jobs. Its only function is to endeavor to see that only needy students are certified as eligible to hold positions. Application blanks, obtainable at the office of the Student Aid committee, must be filled out and each student rated before he becomes eligible for a university position. Applications for federal aid work are also handled by the Student Aid committee.

In addition, the university bureau of appointments assists in finding opportunities for men students for employment in faculty homes and about the village of Durham. In the fall and spring months freshmen may secure work several afternoons a week doing such odd jobs or chores as taking care of lawns, gardens, furnaces, etc. By the end of freshman year they may have become familiar with opportunities to secure steady

work, such as waiting on table, serving as janitor in one of the University buildings, etc.

Women Students.—Employment for women students, except for positions in the university offices or departments, is in the hands of the dean of women, and inquiries from women students should be addressed to her.

Freshman women are advised not to attempt to earn their room and board in private families unless they are in good physical condition and have excellent preparation for their university work.

UNIVERSITY AIDS TO STUDENTS

TUITION GRANTS

In order to enable students to attend the university who would be unable to do so without some financial assistance, the trustees award 250 tuition grants annually to residents of New Hampshire who have attended the university less than two semesters. Each tuition grant pays $75 per year and is good for one year only.

Applications for these tuition grants must be returned to the Student Aid committee not later than July 15.

Recommendations for tuition grants may be made by the subordinate and Pomona granges, state senators, State Federation of Women's clubs, and citizens of New Hampshire.

Upon investigation and approval tuition grants will be granted to those whose need appears to the committee to be the greatest.

Tuition grants will be forfeited at any time for misconduct. A student placed on probation thereby forfeits his tuition grant during the period of probation.

SCHOLARSHIPS

A limited number of scholarships are awarded annually to deserving students. In order to grant scholarships equitably the university requires full information of all applicants relative to the necessity for scholarship aid. Scholarship application blanks will be provided upon request to the Student Aid committee.

These scholarships will be forfeited at any time for misconduct. A student placed on probation thereby forfeits his scholarship during the semester of probation.

A more detailed description of the several classes of scholarships follows:

Conant Scholarships.—These scholarships provided by the bequest of John Conant, of Jaffrey, pay $75 at present and are good for one year. By terms of the bequest they are open to men taking agricultural curricula and preference is given to residents of Cheshire county. Application should be made to the Student Aid committee.

Nancy E. Lougee Memorial Scholarships.—Since 1921 the interest on $5,000 bequeathed by Amos D. Lougee, of Somersworth, has been expended for scholarships of $75 each. They will be assigned each year and will be good for one year only. No applications can be approved without satisfactory evidence that the candidates *would be unable to attend without the aid of the scholarships.* Until July 15 of each year, preference will be given to residents of Strafford county. Application should be made direct to the Student Aid committee.

Valentine Smith Scholarships.—Through the generosity of Hamilton Smith of Durham, the sum of $10,000 has been given to establish the Valentine Smith scholarships.

"The income thus accruing shall be given to the graduates of an approved high school or academy who shall, upon examination, be judged to have the most thorough preparation for admission."

These are the most remunerative endowed scholarships that the institution has to offer. They pay $100 a year and are good for four years if reasonable scholarship is maintained.

Competitive examinations for these scholarships will be held in Thompson hall at the university, September 18 and 19, 1939. Examinations will commence at 8 A.M. on Monday. Contestants must present the usual credentials fulfilling the requirements for entrance, and must pass examinations in English, American history, algebra (through quadratics), plane geometry, and either physics or chemistry.

Requests for examinations should be forwarded to the registrar at least one week before the beginning of the examination period, and must state the names and addresses of the students, and the examinations desired.

Examinations are not restricted to residents of the state.

Class Memorial Scholarships.—In accordance with a communication presented to the board of trustees by the Alumni association in 1922, each class upon graduation may establish a fund of $3,000, the interest of which will be used in payment of a class scholarship, to be awarded by a committee appointed by the president. The respective classes shall forward recommendations to this committee which will investigate such recommendations before awarding the scholarships.

Scholarships shall be limited to candidates of the highest moral standards, physically sound, and preference shall be given to those who require financial aid in order to continue their education, and shall be dependent upon the same standards as govern the holding of other scholarships.

Eighteen classes are expected to establish these scholarships, and each scholarship shall be dedicated to the name of one of the eighteen New Hampshire men who died in the service of his country during the World War. Nine classes have established their scholarships to date.

They are: Forrest Eugene Adams Scholarship, Class of 1922; Paul Edward Corriveau Scholarship, Class of 1923; Pitt Sawyer Willand Scholarship, Class of 1924; George Downes Parnell Scholarship, Class

of 1925; Cyril Thomas Hunt Scholarship, Class of 1926; Donald Whitney Libby Scholarship, Class of 1927 and family; Frank Booma Scholarship, Class of 1928; Earle Roger Montgomery Scholarship, Class of 1929; Fred Weare Stone Scholarship, Class of 1930.

Ralph D. Hetzel Interscholastic Debating Scholarships.—The Board of Trustees on December 20, 1926, set aside three scholarships each year (each for three years) to be awarded to the three interscholastic debaters who may qualify under regulations defined by the Interscholastic Debating league or by the university. These scholarships are limited to residents of New Hampshire.

Hunt Scholarship.—A special scholarship paying $75 has been established by the trustees at the request of the United States War department for the benefit of soldiers, or sons and daughters of soldiers, in the United States army. This scholarship is named in honor of Colonel William E. Hunt, '99, and Colonel Charles A. Hunt, '01, who have rendered conspicuous and gallant service as officers of the Regular army before, during, and since the World War. This scholarship will be granted each year and will be good for one year only. Application should be made direct to the Student aid committee. The application cannot be approved without satisfactory evidence that the candidate *would be unable to attend without the aid of scholarship.* Preference will be given to a New Hampshire soldier.

Concord Alumni Scholarship Fund.—The Concord Branch of Alumni of the University of New Hampshire has established a scholarship fund. In accordance with the suggestion of the Concord branch, money paid in from year to year is employed as a part of the student loan fund of the university. Ultimately, the principal and such interest as accrues will be transferred to a special scholarship fund.

Frank B. Clark Fund.—A trust fund of $10,000 has been provided by Frank B. Clark of Dover, N. H., the income of which is to be used for the purpose of assisting and encouraging needy and worthy students who are suffering from physical impairment or deformity.

"Students impaired by the loss of an arm shall receive prior consideration.

"The benefits of this gift are to be available to students in any secondary school or college except a secondary school or college which is under the direction or control of a church or religious affiliations or preferences, and with the further understanding that students at the University of New Hampshire shall be given prior consideration."

Dads'-Hetzel Scholarship Fund.—At the second annual Dads' Day at the university, the fathers present voted to establish a scholarship fund to be known as the Dads'-Hetzel fund and subscribed $304. For the present this money will be employed as a part of the student loan fund of the university. Ultimately the principal and such interest as accrues will be transferred to a special scholarship fund.

Edmund L. Brigham Scholarships.—The income of a trust fund of $4,812, provided by the will of Edmund L. Brigham, a member of the class of 1876, is divided into two scholarships of equal sums each to be known as the Edmund L. Brigham scholarship. They will be awarded at the end of each year to the two members of the freshman class who under the pressure or necessity of having to earn a portion of their college expenses show either a constant improvement in scholarship, or a high scholastic average, or both.

New Hampshire Branch of National Civic Federation Scholarship.—From the income of a fund of $1,100, established in June, 1930 and supplemented in October, 1937, by the New Hampshire Branch of the National Civic Federation, a scholarship is to be awarded annually to the junior woman majoring in economics or business who, at the end of her junior year, by excellence of scholarship, character and promise of leadership, is judged to be most worthy. The dean of the College of Liberal Arts and the two ranking members of the department of economics shall name the winner of this scholarship in each year.

S. Morris Locke Memorial Scholarship.—The income of a fund of $3,000 established by the late Mary D. Carbee of Haverhill, N. H., as a memorial to Mr. and Mrs. S. Morris Locke, shall be known as the S. Morris Locke Memorial scholarship. This scholarship is to be awarded each year to the highest ranking junior majoring in chemistry, entomology, or in any work where the microscope or microscopic technique is largely employed, who has demonstrated outstanding qualities of application, industry and initiative in any of these fields of work.

Cogswell Scholarships.—Through the generosity of the trustees of the Cogswell Benevolent Trust of Manchester there will be available to members of the class of 1940, during their senior year, 20 scholarships of $200 each and 10 of $100 each. These scholarships will be given to members of the class whose general record of scholarship, attainments and conduct during the freshman, sophomore, and junior years are adjudged by a committee of the faculty to be most worthy. The committee will scrutinize closely the record of the junior year, and will give weight not only to the general excellence of the scholarship record, but to growth and improvement as well. Prior consideration will be given by the committee to the achievements of the members of the class who are residents of the town of Henniker and the city of Manchester.

Hood Scholarships.—Through the generosity of Charles H. Hood, '80, there are available to qualified students in the College of Agriculture whose aims are set definitely to promote farming as a life opportunity five scholarships of $200 each. These scholarships are awarded to students who maintain high standards of scholastic excellence, strong characters and, in case of competition, are assigned in preference to students who intend after graduation to take up work relating to farm milk production.

George H. Williams Fund.—The income of the fund of $9,900, bequeathed to the university by the late George H. Williams of Dover, N. H., known as the George H. Williams fund, shall be used to award scholarships to deserving and meritorious students of Dover. This income shall be divided into four annual scholarships of equal value. These scholarships, awarded for one year only and not renewable, will be granted to men and women students, residents of Dover, for either the sophomore or junior year. Eligibility shall depend upon character, meritorious scholarship, self-help and evidence of financial need. Application should be made to the Student Aid committee.

The Ordway Fund.—Through the bequest of Martha H. Ordway, of Hampstead, made in 1934, the income from $2,000 will be expended each year for the benefit of indigent students from Sandown or Hampstead, if any; otherwise for the benefit of other indigent students attending the university. Application should be made to the Student Aid committee.

Charles H. Sanders Fund.—The income from a bequest of $3,000 from the estate of Charles H. Sanders, class of 1871, provides a scholarship in memory of the first class to be graduated from the University in 1871, consisting of William P. Ballard of Concord, Lewis Perkins of Hampton, and Charles H. Sanders of Penacook. This scholarship will be awarded to a needy member of the junior class who has excelled in scholarship or has shown marked improvement in his scholastic achievement during his first two years at the university. Application should be made to the Student Aid committee.

John N. Haines Scholarship.—The income from a fund of $2,475 bequeathed by John N. Haines of Somersworth will be used to provide a scholarship for a deserving student of the university. Preference will be given to a student whose home is in Somersworth. Applications should be directed to the Student Aid committee.

C.M.T.C. Scholarship.—One of the 250 state scholarships already established by the Board of Trustees will be awarded each year to a member of one of the Citizens' Military Training camps in the First Corps area selected from red, white, or blue students by the Commanding General of the First Corps area. This scholarship, available to a freshman for one year only, will be awarded to a resident of the state of New Hampshire whose application for admission to the university has been accepted without condition and who needs help in order to attend the university. The scholarship will be awarded after August 15 of each year.

Harvey L. Boutwell Scholarship.—The income of a bequest of $3,000 of the late Harvey L. Boutwell of Malden, Mass., class of 1882, and member of the board of trustees from 1911 to 1929, provides a scholarship for a deserving student who would otherwise find it difficult to obtain a higher education. It will be awarded annually to a Massachusetts student, preference to be given to a resident of Malden, Mass.

The determination of the award will be based on character, scholarship, self-help and evidence of financial need. Application should be made to the Student Aid committee prior to July 15.

Currier-Fisher Scholarship Fund of New Hampshire's Daughters.—The income of a gift in 1938, of $3,500 from New Hampshire's Daughters, is to be used for educational purposes by New Hampshire girls attending the university. Application should be made to the Student Aid committee not later than July 15.

STUDENT LOAN FUND

In order to assist needy students to continue their education, the university has established a student loan fund. After proper investigation, and approval by parents, loans may be granted to responsible students for tuition or other college expenses, except that freshmen holding tuition grants may borrow in addition not in excess of $25. These loans will bear interest at 2 per cent until graduation or withdrawal from the univeristy, and 5 per cent after graduation or withdrawal and are payable as follows: $5 a month beginning one year after graduation or withdrawal; $10 a month beginning two years after graduation or withdrawal; $15 a month beginning three years after graduation or withdrawal; and a like sum each month thereafter until principal and interest are paid.

The John H. Pearson Trust.—In coöperation with the trustees of the John H. Pearson Estate, Concord, N. H., a student loan fund known as the John H. Pearson trust has been established, and is administered under the conditions governing the student loan fund of the university.

James B. Erskine Loan Fund.—In 1930, a bequest of Dr. James B. Erskine, of Tilton, provided a fund of $3,642 for loans to students; loans to bear interest at the rate of 5 per cent until paid. This fund will be reserved for members of the senior class.

S. Morris Locke Loan Fund.—Through a bequest of the late Mary D. Carbee of Haverhill, N. H., a fund has been created for loan purposes in memory of Mr. and Mrs. S. Morris Locke. The fund now totals nearly $20,000.

R. C. Bradley Loan Fund.—The New Hampshire Poultry Growers association has established a loan fund for loan assistance to undergraduates who have been in attendance at the university at least two years with preference given to seniors. Loans are open only to students majoring in poultry husbandry in the College of Agriculture and are based on character, scholarship, and need of financial assistance. Applications made to the Committee on Student Aid are approved by that committee with the advice of a committee selected by the directors of the Poultry Growers association.

PRIZES

Bailey Prize.—To endow the prize formerly offered by C. H. Bailey, '79, and E. A. Bailey, '85, a fund is being created by winners of the prize, the income of which will continue the prize for proficiency in chemistry.

Erskine Mason Memorial Prize.—Mrs. Erskine Mason of Stamford, Conn., has invested $100 as a memorial to her son, a member of the class of 1893, the income of which is to be given to that senior who is most distinguished for consistent progress and achievement.

Interscholastic Debating Prize.—The University of New Hampshire Debating league was reorganized in 1921, and is under the direction of the instructor in debating and public speaking in the university. Any secondary school of the state is eligible for membership. Preliminary contests are conducted at the schools, and a final contest is held at the university to determine the winner of the league. A prize cup is awarded in rotation to the winners. Other prizes, such as medals and certificates, are awarded to individual debaters from time to time.

Interscholastic Prize Speaking Contest.—This contest, for students of any accredited high school of the state (provided they have not already won the first prize in a previous year), was first held in May, 1912. Three prizes are provided by the university for the winners.

University Inter-Fraternity Scholarship Trophy for Men.—Through the generosity of Wilfred A. Osgood, '14, who has donated trophies for similar purposes in the past, a plaque is donated which is to be awarded each year to that fraternity whose members have the highest scholastic standing as certified by the registrar.

Dietrich Cup.—This cup was given by the class of 1916 in memory of Rosina Martha Dietrich, a member of that class, who died a few weeks before graduation. The cup is to be awarded each year to the girl who attains the highest scholarship in her junior year. The cup is to remain in her possession throughout her senior year and until the next winner is named.

The American Legion Award.—The New Hampshire Department of the American Legion as a mark of recognition of the university's contribution in the World War, and as an expression of its interest in national defense, offers yearly a medal to that man in the senior class who has attained the highest distinction determined by achievement in military science, athletics, and scholarship. The name of the winner will be inscribed on a trophy. This trophy, made possible by the generosity of the American Legion of this state, is to remain in the permanent possession of the university.

Bartlett Prize.—Former Governor John H. Bartlett, Hon. '20, of Portsmouth, N. H., offers a prize of $50 each year, to be awarded annually to that New Hampshire student, a member of the junior class,

who ranks highest in scholarship for the year among those young men who have earned at least one-half their expenses since entering the university. This prize was awarded first in June, 1921.

Chi Omega Prize.—Mu Alpha Chapter of Chi Omega awards an annual prize of ten dollars at Commencement to the undergraduate woman student at the university who shall submit to the committee on award the best thesis on any subject dealing with problems of civic interest in sociology or economics. The title shall be approved by the head of the department concerned and the thesis shall be received, not later than June first, and graded by a joint committee composed of the heads of the departments of sociology, economics and English. If, however, no thesis is found by the committee to deserve the award, no prize shall be given.

Class of 1899 Prize.—The Class of 1899 has given to the university a fund of $500, the income to be used as a cash prize to be awarded "by the faculty to the senior who in their opinion has developed the highest ideals of good citizenship."

Phi Mu Medal.—The local chapter of Phi Mu offers a gold medal to a senior girl to be awarded on the following basis: 50 points for excellence in physical education, determined by both skill and the spirit in which the work is carried; the remaining 50 points must be attained by evidence of unusual scholastic capacity, democracy, loyalty, and helpfulness in college associations and activities. No candidate will be considered who does not have an average grade for her college work above 80.

Phi Sigma Prize.—In order to promote high scholarship in zoölogy and the allied sciences, the Phi Sigma national honor fraternity offers a prize of $25 to be awarded at Commencement to that senior who ranks highest in zoölogical courses throughout the entire four years of collegiate work. The amount of work carried in biology, together with the average grade in all other courses, shall be considered in making this award. The prize has been offered each year since 1921.

Hood Prizes.—Through the kindly interest and generosity of Charles H. Hood of the class of 1880, the income of funds given to the university in 1921 and in 1924 will be used for the encouragement, aid, and benefit of deserving students.

In accordance with the suggestion of the donor, for the present the income will be expended as follows:

First. *Hood Achievement Prize.*—A gold medal will be awarded annually to that member of the senior class whom the members of the three upper classes choose as giving the greatest promise of becoming a worthy factor in the outside world through his character, scholarship, physical qualifications, personal popularity, leadership and usefulness as a man among men.

Second. *Hood Dairy Prizes.*—A part of the Hood income will be devoted each year to paying a portion of the expenses of the members of a team or teams chosen for excellence in judging dairy cattle and sent to participate in intercollegiate or other dairy contests. Suitable medals will also be provided for the individual members of such teams.

Third. *Hood Supplementary Bequest.*—The income from this bequest will be used for the purchase of a suitably inscribed trophy to become the property of the university. The names of the winners of prizes in dairy cattle judging are to be inscribed annually upon this trophy, which will thus serve as a permanent record to the institution of their skill and accomplishment.

The Fairchild Memorial Prizes.—In 1927 Mask and Dagger, the dramatic society of the University of New Hampshire, established two prizes of $25 each to be awarded each year to the two seniors who have done the most to promote dramatics during their four years at the university. These prizes are given in memory of Edward T. Fairchild, late president of the university.

Thomas J. Davis Prize.—By gift of Thomas J. Davis, Duluth, Minn., a native and former resident of Durham, a fund has been provided for the establishment of dairy and household science prizes as follows:

First. For competitive judging of dairy cattle by "short course students," excluding all four-year students, and allowing a suitable handicap in favor of students who are taking a course of not more than four months.

Second. To young women taking a short course for competitive bread baking as a half unit and for dairy butter making as another half unit.

Locke Prize.—The income of a trust fund of $3,000 bequeathed by the late Mary D. Carbee of Haverhill, N. H., as a memorial to Mr. and Mrs. S. Morris Locke, will be awarded at the end of each year to that junior majoring in Latin, who is adjudged by a committee of the faculty to have excelled in the study of that language. In awarding the prize the committee shall give weight not only to the average grade in Latin, but also to the general record of scholarship, other attainments and character.

Alpha Xi Delta Cup.—A cup will be awarded annually by the Alpha Xi Delta sorority to the senior girl who proves herself to be the best athlete in her class. The cup will be awarded on consideration of the following qualifications: good sportsmanship, physical fitness, athletic achievements, and superior skill. The cup will be awarded by a board of judges including the members of the department of physical education for women, the president of the Association of Women Students and the president of the Women's Athletic association.

Mask and Dagger Achievement Prizes.—In 1929 and in 1930, Mask and Dagger established two annual prizes of $25 each to be known as the Mask and Dagger Achievement prizes. These are awarded each year to the seniors who, during their college courses, have made the most outstanding artistic contributions to the dramatic work of the university.

Psi Lambda Cup.—Psi Lambda, the home economics club, each year awards a cup to the home economics senior who has shown the greatest improvement in personality and scholarship during her four years in college.

Alpha Chi Omega Prize.—A ten dollar prize will be awarded annually by Alpha Tau chapter of Alpha Chi Omega to the undergraduate student of the university who submits to the head of the department of English the best informal essay of less than three thousand words. The title may be chosen by the student. All essays must be written specifically for the Alpha Chi Omega prize. Such essays will be due May 27 of each year. After the prize has been awarded, all essays will be returned upon request.

Association of Women Students Award.—The Association of Women Students will award annually $25 to the woman student who has proved to be of value to the women's student body, and who has shown by scholarship, self-help, leadership, and loyalty that she is worthy of this award.

Alpha Zeta Scholarship Cup.—A cup is awarded annually by the Granite chapter of the fraternity of Alpha Zeta to the sophomore in the College of Agriculture who has made the highest scholastic average during his first three semesters' work. The winner is to have his name engraved on the cup and to hold it for one year.

General Chemistry Award.—The local chapter of Alpha Chi Sigma, professional chemistry society, engraves each year on a trophy placed in Charles James hall, the name of the freshman who secures the highest average grade in chemistry.

Phi Lambda Phi Award.—Phi Lambda Phi, physics honor society, will award annually a prize of $10 to a senior member of the society who is most deserving, as revealed by proficiency in physics and general scholarship.

Military Prizes.—The Military department of the university offers gold, silver and bronze medals representing first, second, and third prizes, to be awarded for excellence in individual competitive drill among members of the freshman class.

Similar medals are awarded, after competition, among members of the sophomore class for elementary command and leadership.

Third year students may compete for a presentation sabre, and silver and bronze medals. The scope of this contest is excellence in platoon drill and leadership.

Senior students are eligible to enter a like contest in the field of company drill and leadership.

In addition to the above, gold, silver, and bronze medals are offered in competition among freshman for excellence in rifle marksmanship.

The R.O.T.C. Band Award.—Gold, silver, and bronze medals are awarded annually to those students, members of the R.O.T.C. Band, who are adjudged the most distinguished military musicians.

Scabbard and Blade Gold Medal.—Awarded annually to the R.O.T.C. student who is adjudged the most soldierly character. This medal is not awarded on a basis of perfection at drill, but rather on the strength of such qualities as physique, character, energy, mentality, courage, leadership, and in general, such characteristics as promise especial value to the military service of the nation in the event of a future emergency.

The Wellman Trophy.—The Wellman trophy, given by James A. Wellman, of Manchester, a trustee of the university since 1928, to stimulate and promote interest in debating and public speaking, will be awarded annually at the end of his junior year to that student who has shown excellence and continued improvement in debating. The element of improvement will be of first importance in judging the winner. The name of the winner will be engraved on the trophy which will be on display in the Trophy room.

METHODS OF ADMISSION

Provided the special requirements of the separate colleges are fully met, the university will admit without examination properly prepared New Hampshire students who are graduates of high schools or academies of New Hampshire that are approved by the State Board of Education, or those who are graduates of other specially approved schools.

Applicants whose records do not give evidence of capacity, disposition, and preparation adequate for successful college study may be required to withdraw their applications or to submit to examinations to determine their fitness for college study. This applies directly to those who stand low in their respective classes in the secondary school, and to others concerning whose qualifications there may be doubt. In so far as is practicable, officers of the university will arrange for personal conferences with such applicants.

The number of persons, not residents of New Hampshire, admitted each year is determined by vote of the Trustees and the state law.

Each applicant for admission to the university will be required to submit three forms: (1) an admission credential blank filled out by the headmaster or principal of the secondary school from which he is graduated; (2) a personal statement blank filled out by the applicant; (3) a health history form. These blanks are distributed through New Hampshire and other secondary school officials or they may be secured by application to the Chairman, Committee on Admission, Durham, N. H., to whom all such blanks should be forwarded.

An applicant for admission who is a resident of New Hampshire is required to remit $10 with his application. One from outside the state is required to remit $25. If the applicant is admitted to the university, his advance payment will be applied to the first semester's tuition; if he is not admitted, his advance payment will be returned. In the case of the applicant who is accepted for admission but does not enter, the advance payment will not be returned. Remittance should be made either by check or by money order payable directly to the University of New Hampshire and should be sent with the application for admission.

In order to give ample time for the selection of out-of-state students, and for full investigation of New Hampshire applicants, it is desirable that applicants for admission, both from within and without the state, forward their personal statements and credentials during the months of March, April, or May, it being understood that the preparatory school work will be completed in June. Credentials should cover work done as nearly as possible to date of application. In addition to the usual credentials, a personal interview may be required by the Committee on Admission.

Candidates for admission to the freshman class must show evidence,

either by credential or examination, that they are prepared in 15 units as indicated in the following table. At least 12 of these units should be from Groups A, B, C, D, and E.

An entrance unit represents one study of four or five recitations a week for one year. It is assumed that two hours of manual training or laboratory work are equivalent to one hour of classroom work.

Required Units	*College of Agriculture*	*College of Liberal Arts*	*College of Technology*
Group A English	3	3	3
*Group B** Mathematics	2	2	3†
Group C Social Science and history	1	1	1
Group D Natural Science	1	1	1
Group E Foreign languages			
Group F Vocational subjects			
	7	7	8
Elective Units	8	8	7
Total for admission	15	15	15

Elective units may be offered from all groups, including a fourth year of English.

Entrance examinations will be given at the university September 7 and 8. Requests for these examinations should be forwarded to the Chairman, Committee on Admission, at least one week in advance.

Cases not covered by the above statements will be decided by the Committee on Admission.

Candidates for advanced standing may be admitted on the basis of the work satisfactorily completed at the institution from which they come.

Every candidate for admission to the university shall be required to procure a statement, signed by the town or city clerk, to the effect that the father or legal guardian is a resident of the town or city and state from which he purports to register. Students admitted from foreign countries or states other than New Hampshire shall be deemed to be non-resident students throughout the entire university course unless and until the parents or out-of-state legal guardian shall have gained residence in New Hampshire.

Admission of non-resident candidates will be by selection, and only records of good grade will be considered; character, leadership, alertness, etc., will also be taken into account. Because of the large number

* At least two years of mathematics consisting of one year of algebra and one year of plane geometry are required for entrance except that a candidate for admission to the General curriculum of the College of Liberal Arts who offers two units in a single foreign language may substitute for the two units required in mathematics two additional units in subjects named in groups A, C, D and E above.

† Students entering the College of Technology must offer three units of mathematics which should include elementary and advanced algebra, plane and solid geometry.

of New Hampshire students needing financial assistance in the form of employment, only a very limited number of applications can be considered which do not give evidence of reasonable financial backing.

Every candidate for admission to the university must, before he can be admitted, present evidence satisfactory to the university physician that he is in good health. This evidence may be secured by members of the entering class through physical examinations given during Freshman week at university expense. Students who enter with advanced standing, special students, and freshmen who do not attend Freshman week must assume personally the expense of physical examinations necessary in securing evidence of satisfactory health. Such evidence must include a complete medical and surgical history of each student, and blank forms intended to assist each applicant in furnishing such a history are provided by the university.

FRESHMAN WEEK

Freshman week was instituted at the University of New Hampshire in 1924. It is evident from a study of the results of the activities of this week that it has served as a valuable means of adjusting freshmen to their new environment, of creating right attitudes towards college work and of minimizing the usual delays during the first few weeks of the regular term. By means of so-called "placement tests" the students will be sectioned according to their abilities and aptitudes. The week also affords an opportunity for the students to learn to know each other, to organize their efforts, to work together, to play together, and to become acquainted with the campus, the buildings, the faculty and with the courses of study and the traditions of the university.

Attendance of all freshmen throughout Freshman week, beginning Tuesday, September 19, and continuing through Saturday, September 23, will be obligatory. Any prospective candidate for the freshman class who is absent from the exercises beginning on September 19 will seriously imperil his admission to the university.

REQUIREMENTS IN DETAIL

GROUP A. ENGLISH

The requirement in English is that recommended by the National Conference on Uniform Entrance Requirements in English:*

"1. Habits of correct, clear, and truthful expression. This part of the requirement calls for a carefully graded course in oral and written composition, and for instruction in the practical essentials of grammar, a study which should be reviewed in the secondary school. In all written work constant attention should be paid to spelling, punctuation, and good usage in general as distinguished from current errors. In all oral work there should be constant insistence upon the elimination of such elementary errors as personal speech-defects, foreign accent, and obscure enunciation."

"2. Ability to read with intelligence and appreciation works of

* Reprinted from Document 123 of the College Entrance Examination Board.

moderate difficulty; familiarity with a few masterpieces. This part of the requirement calls for a carefully graded course in literature."

Lists of books should be provided from which a specified number of units must be chosen for reading and study. These lists should be progressively difficult, ranging from the simpler books suitable to the earlier years in the secondary schools to those requiring the closer study warranted in the later years. Such lists should include the following:

At least one novel each by Scott, Eliot, Dickens, Hardy, Stevenson, Hawthorne, Cooper and Mark Twain; *The Merchant of Venice, As You Like It, Hamlet* or *Macbeth, Midsummer Night's Dream;* Milton's *Minor Poems;* Irving's *Sketch Book;* Coleridge's *Ancient Mariner;* Palgrave's *Golden Treasury;* speeches by Washington and Lincoln. It is also highly *desirable* that the prospective college student should have read the following: some of the great epics in translation; collections of modern verse, of scientific writings, and of modern plays; some biography; and *Myths and Their Meaning,* by Herzberg.*

GROUP B. MATHEMATICS

1. Elementary Algebra.—The four fundamental operations for rational algebraic expressions. Factoring. Fractions, including complex fractions, and ratio and proportion. Linear and quadratic equations, both numerical and literal. Problems depending on linear and quadratic equations. Radicals, including the extraction of the square root of polynomials and of numbers. Exponents, including the fractional and negative.

2. Advanced Algebra.—The formula for the *n*th term and the sum of the terms of arithmetical and geometrical progressions, with applications. The theory and use of logarithms, without involving the use of infinite series. The binomial theorem for positive integral exponents. Complex numbers, with graphical representation of sums and differences. Determinants limited to simple cases. The elements of the theory of equations.

3. Plane Geometry.—The usual theorems and constructions of good text-books, including the general properties of plane rectilineal figures; the circle and measurement of angles; similar polygons; areas; regular polygons, and the measurement of the circle. The solution of numerous original exercises, including loci problems. Applications to the measurement of lines and plane surfaces.

4. Solid Geometry.—The usual theorems and constructions of good text-books, including the relations of lines and planes in space; the properties and measurement of prisms, pyramids, cylinders and cones; the sphere and the spherical triangle. The solution of numerous original exercises, including loci problems. Applications to the measurement of surfaces and solids.

* For more detailed information concerning the reading, write to Head, Department of English, University of New Hampshire, Durham, New Hampshire.

5. Plane Trigonometry.—The subject matter of plane trigonometry as presented in good text-books, including the solution and use of trigonometric equations of a simple character, the use of logarithms, the solution of right and oblique triangles, and practical applications.

6. Review Mathematics.—A general mathematics review during half of senior year is recommended, especially for students preparing for college engineering courses. A certificate covering the work of not more than one unit will be accepted for entrance.

GROUP C. SOCIAL SCIENCE AND HISTORY

This group includes history, economics, commercial law, and sociology.

Although there are excellent text-books in history, an adequate preparation cannot be obtained by these alone. Some collateral work is necessary, whatever book is used, and with certain ones a large amount is necessary. The details of the preparatory work in the social sciences are stated in "The Program of Studies Recommended for the Public Schools of New Hampshire," by the State board of education.

1. History of Civilization.

2. Ancient History.—This may include the earliest nations and the period to 800 A.D., or it may be limited to Grecian history and Roman history to the fall of the Western Roman empire.

3. Mediaeval and Modern European History.

4. U. S. Constitutional History.—It is assumed that a reasonable amount of time is to be given to the study of the Constitution of the United States.

5. Sociology.—The background in sociology should include a thorough familiarity with one of the introductory text-books in this field, with collateral emphasis on the basic adjustments of individuals, groups, institutions, races, and classes.

The student should be familiar with the scientific method as applied to the study of society; social ecology; basic processes; laws of social interaction, mobility, and control; basic institutions; characteristics of rural and urban life; and the nature of social problems.

For a more complete description, see the program of studies recommended by the State board of education of New Hampshire.

6. Economics.—The work in this field should consist of the mastery of a standard text or its equivalent assignments from one or more standard works. The study should introduce the student to the broad field of historical and descriptive economics. This should include:

1. Elementary economic geography.
2. The leading facts in the economic history of the United States.
3. Human wants and their satisfaction.
4. A description of money and a brief study of its function.

5. Distribution, including some study of land, labor, capital.
6. Governmental relation and control of business.

For a more complete description see the "Program of Studies" recommended by the State board of education of New Hampshire.

7. Commercial Law.—The work in commercial law should include a study of the elementary principles of the law of contracts, agency, sales, bailments, negotiable instruments, business organizations, personal and real property. (For a detailed statement, see "Program of Studies Recommended for the Public Schools of New Hampshire" by the State board of education.)

GROUP D. NATURAL SCIENCE

A notebook, carefully kept, and examined by the teacher, is an essential part of all laboratory work in science.

1. Biology.—The work in biology should cover the material outlined in the program of studies recommended for the public schools of New Hampshire by the State board of education. Either a half or a whole year's work will be accepted.

2. Chemistry.—Elementary inorganic chemistry should cover (1) a study of the more common non-metallic and metallic elements and their most important compounds; (2) an introduction to the general theoretical principles; (3) calculations based upon chemical equations and changes of gaseous volumes. A year's work should consist of four or five exercises per week, at least one of which should be in laboratory work.

3. Physics.—The work in physics should consist of (1) the study of a standard text for one school year under the guidance of a science teacher. The minimum time devoted to this phase of the work should be four periods a week. (2) Performance of such experiments as the science teacher suggests, under the personal guidance of the teacher. The minimum time for this phase of the work, to include both performance of experiment and writing of report, should be two periods per week.

4. Zoölogy.—A study of the fundamental principles of animal structure and the dissection of type forms. The student should become familiar with the characteristics of the various phyla of the animal kingdom. The study should consist of four or five exercises a week, at least one of which should be laboratory work. Either a half or the whole of a year's work will be accepted.

5. General Science.—To meet a recent movement in the disposition of the science work in the high schools, a course in general science which amounts to at least four exercises a week for one year will be accepted. Such a course may include something of the biologic and earth sciences, the sciences employed in household economy, and the more common phenomena of physics and chemistry.

GROUP E. FOREIGN LANGUAGES

1. FRENCH.—Work of the first year should include (1) careful drill in pronunciation, through dictation, conversation, and reading aloud; (2) drill upon the rudiments of grammar, with some translation of simple English into idiomatic French; (3) reading of 200 pages of French prose, if French is not the language of the classroom and a large amount of oral French is not used by teacher and pupils, or of 100 pages if French is the language of the classroom and the time saved by a reduced reading standard is devoted to oral work in French; in both cases the reading should be divided between some intensive, accurate study of the French prose, with translation into English to check up on the pupils' understanding of the passage, and some extensive reading to induce pupils to read French for the pleasure and satisfaction it affords.

Work of the second year should include (1) the reading of 300 or 400 pages of French prose, the amount to depend, as in the first year, upon the time devoted to oral work, the reading being again divided into intensive and extensive; (2) dictation, conversation, grammar drill, and composition, based on topics connected with the classroom and events of everyday life in France; (3) some practice in translating into French from English variations or paraphrases of the French texts read, so as to fix important words and idioms in the memory and to transpose the passive knowledge gained from reading into an active command of French.

Work of the third year should include (1) the reading of 500 or 600 pages of French, part intensively, part extensively, with emphasis on books of recognized literary value and on those which describe the history and civilization of France; (2) continued oral drill (dictation, discussions, etc.); (3) emphasis upon the writing of grammatically correct and idiomatic French dealing partly with the texts read, partly with the ordinary experiences of life here and in France.

2. GERMAN.—Work of the first year should include (1) careful drill in pronunciation; (2) drill upon the rudiments of grammar; (3) dictation and other oral work; (4) the reading of from 100 to 200 pages of prose; (5) translation of simple English into correct, idiomatic German. Work of the second year should include (1) the reading of from 200 to 300 pages of prose, part intensively to acquire habits of accuracy, part extensively to encourage reading for pleasure and satisfaction; (2) oral drill (dictation, discussions, reading aloud); (3) continued drill upon the rudiments of grammar, through exercises based upon the texts read and others dealing with life in Germany; (4) the study of German history, customs, and institutions through appropriate reading texts and composition exercises; (5) reading and memorizing of simple German lyrics.

3. LATIN, ELEMENTARY.—Grammar and the equivalent of four books of Caesar. Two years' work.

4. LATIN, ADVANCED.—Equivalent of Virgil, six books, and Cicero, six orations.

METHODS OF ADMISSION

GROUP F. VOCATIONAL SUBJECTS

1. AGRICULTURE (SMITH-HUGHES).—The work in agriculture covers ten periods a week throughout the school year and includes a study of and participation in the following, supplemented by at least six months of supervised, individual project work on the home farm:

a. Major, contributory, and minor agricultural enterprises in the community, based upon the results of a survey of local farm practice.

b. At least twenty per cent of the total time allotted each year is devoted to farm mechanics, comprising the daily jobs confronting the farmer in keeping his equipment in the best of condition, and in doing the ordinary repair and construction work which arises on the farm.

c. Agricultural economics and farm management are considered each year in relation to each of the three types of enterprises. In addition, part of the work of the senior year is devoted to a synthesis and extension of the principles applied in connection with the three types of enterprise in each of the three preceding years.

Centering around the farm job and the home project, the activities of the pupils include discussions, surveys, directed study, demonstrations, field trips, and manual work.

2. COMMERCIAL SUBJECTS.—Junior business training, commercial arithmetic, bookkeeping, commercial geography and history, stenography and typewriting, office or secretarial practice.

3. HOME ECONOMICS.—Textiles and clothing, foods and nutrition, the home, its care and management, the family and its members, and child development.

4. MECHANIC ARTS.—Cabinet making and wood turning, pattern making and molding, tool forging and work on lathe, shaper, planer, drill press and milling machine, electrical work, automobile mechanics and repair, printing, related mechanical drawing, shop mathematics, shop physics, mechanics, shop organization.

SPECIAL STUDENTS

A mature student who is not a candidate for a degree, upon presenting satisfactory evidence of his ability to carry successfully the desired courses, may be admitted as a special student for one year only, upon the approval of the committee on admission.

In choosing his studies he must have the approval of the head of each department in which he elects courses, and of the deans of the colleges concerned.

No credit earned by a special student shall count toward a degree except upon approval of the committee on admission.

ADVANCED STANDING

BY TRANSFER

Candidates for advanced standing from approved institutions may be admitted by the committee on admission. Their status in the University of New Hampshire will be determined by the quantity and quality of the work completed at the institution from which they come.

(1) Such students must present catalogs of the institutions from which they come together with official certificates showing (a) all preparatory subjects accepted for entrance, (b) complete transcripts of records including grades of scholarship in each subject, (c) statements of honorable dismissal.

(2) All candidates for the bachelor's degree, admitted to advanced standing, must spend their last year in residence, either in course or in summer school. This requires the completion of at least 32 semester credits.

(3) Regardless of the amount of advanced standing a student may secure, in no case will he be given a bachelor's degree until he has satisfied the full requirements of the curriculum he may elect.

BY EXAMINATION

Students twenty-five years of age, who desire to work for a bachelor's degree, may secure a substantial amount of the necessary credit by examination. Inquiries regarding the details of this arrangement should be addressed to the registrar.

THE GRADUATE SCHOOL

HERMON L. SLOBIN, *Dean*

AIMS

The Graduate school aims to meet the needs of superior students who are preparing to become teachers in colleges or universities, or investigators, and to offer opportunities to qualified students for a more advanced training than they can obtain in an undergraduate curriculum.

ADMINISTRATION

Graduate work is offered, under the supervision of the dean of the Graduate school, by competent members of various departments of instruction and research. These members constitute the faculty of the Graduate school.

The general administrative functions of the faculty are delegated to the dean and the committee on graduate study.

ADMISSION

A student who holds a bachelor's degree, or its equivalent, from an approved college or university, is eligible for admission to graduate study.

Admission to graduate study does not necessarily imply admission to candidacy for an advanced degree. Students who are not planning to become candidates for an advanced degree may be admitted to graduate study upon the recommendation of the heads of the departments concerned, and with the approval of the dean.

A student may major only in the departments represented in the catalog of the Graduate school.

REGISTRATION

A student desiring to register for graduate study must submit to the dean of the Graduate school the official application for admission to graduate study. Blanks for this purpose may be obtained from the dean of the Graduate school.

Upon admission to graduate work, a student first pays his fee at the business office and deposits his enrollment cards with the registrar.

REQUIREMENTS FOR GRADUATE CREDIT

Graduate credit will not be allowed to undergraduate students unless such credit has been approved in advance by the dean of the Graduate school.

A student will not receive graduate credit for a course in which he has obtained a grade lower than 70.

ADVANCED DEGREES

The advanced degrees conferred are: master of science, master of arts, master of education, master of civil engineering, master of electrical engineering and master of mechanical engineering.

Requirements for the Master's Degree

Residence.—A minimum of one full academic year, or four summer sessions of six weeks each, at the University of New Hampshire, or three summer sessions of eight weeks each, at the Isles of Shoals, in residence is required.

Credits.—An average grade of at least 80 in not less than 30 semester credits is required. These credits must be in courses numbered 51 or over, and must be in the major and allied departments as prescribed by the head of the major department and approved by the dean of the Graduate school. Of the total credits required for an advanced degree, not more than 6 semester credits may be transferred from another institution.

Students who transfer the total of 6 credits from another institution may complete the residence requirement at the university in three summer sessions.

Thesis.—If a thesis is required, the candidate must file with the committee on graduate study, for their approval, a statement of the thesis subject as recommended by the head of the department in which the thesis work has been done, at least six months previous to the time the degree is sought.

All theses must be typewritten upon standard paper, 8½ by 11 inches, medium weight, neatly bound in black cloth, and gilt-lettered on the first cover with the title, name of author, degree sought, and year of graduation. The title page should bear the following statement:

"A thesis submitted to the University of New Hampshire in partial fulfillment of the requirements for the degree of

Master of arts in (name of major subject)
Master of science in (name of major subject)
Master of education
Master of civil engineering
Master of electrical engineering
Master of mechanical engineering."

Whenever a thesis is printed in any periodical, it must be designated as having been accepted as a master's thesis by the University of New Hampshire.

Two bound copies must be filed before commencement day, one with the librarian and one with the head of the department in which the major work has been done.

Examinations.—All candidates must meet the regular departmental requirements as to examinations in the courses for which they are regis-

tered, and the requirement of a special comprehensive examination, by the heads of the departments in which the major and allied courses have been taken, three months previous to the time the degree is sought. In addition, the candidate must pass an oral examination by a special committee designated by the committee on graduate study and including the heads of the departments in which the major and allied courses have been taken, before the candidate may be recommended for the master's degree. At least two months previous to the time the degree is sought the candidate must file with the dean of the Graduate school the "Application for Examination for Advanced Degree." The application forms may be obtained at the office of the dean of the Graduate school.

(For detailed information concerning graduate study, see the catalog of the Graduate school.)

FOUR-YEAR CURRICULA

COLLEGE OF AGRICULTURE

M. Gale Eastman, *Dean*

DEPARTMENTS

Agricultural and Biological Chemistry
Agricultural Economics
Agronomy and Agricultural Engineering
Animal Husbandry
Botany and Bacteriology
Dairy Husbandry
Entomology
Forestry
Horticulture
Poultry Husbandry

Requirements for Degrees

Each candidate for a degree must complete 144 semester credits and the courses prescribed in one of the major four-year curricula.

Students graduating from the four-year curriculum in animal husbandry, dairy husbandry, teacher preparation or general agriculture must present to the dean of the College of Agriculture, at least two weeks prior to commencement, satisfactory evidence of having had practical experience in farm work, either through having lived on a farm for at least two years subsequent to the age of 12, or through having worked on a farm at least six months subsequent to the age of 16.

Students graduating from the forestry curriculum must have spent at least three months in practical forest work, in addition to attendance at an eight weeks' summer camp under supervision of the forestry department.

Students graduating from the horticulture curriculum or the poultry curriculum must have had practical experience on the college farm and elsewhere to satisfy the heads of the major departments concerned.

Teacher preparation seniors must take one semester of supervised teaching in some high school in the state designated by the state department of education.

Several fields of study in the fine and applied arts within the university are open to students in the College of Agriculture without prerequisites. The attention of students is directed especially to the offerings in architecture, English, home economics, horticulture, music, physics, and pottery.

Students having any interest and possible time are urged to consult Mr. George R. Thomas of the department of architecture to learn more about these courses.

Curricula

The object of the four-year curricula of this college is to give a broad general education and thorough training in the basic sciences as well as

to develop specific technical knowledge relating to the various phases of agriculture. To this end several subjects in the Colleges of Liberal Arts and Technology have been added to those provided by the College of Agriculture. The lecture and recitation work of the classroom in agriculture is amply supplemented in all cases by practical exercises in the laboratories and about the farm. Seminars and discussion courses also are provided for seniors or other advanced students.

Many of the graduates of the four-year curriculum return to the farm for the purpose of putting into practice the knowledge and training gained in their college courses, and many of them have become successful and prosperous citizens of their communities; others, who have no farms of their own, accept salaried positions as superintendents or foremen on large dairy, fruit, stock, or poultry farms; still others take positions as teachers of science and agriculture in our secondary schools, or as assistants in our agricultural colleges, experiment stations or extension services; and, finally, an increasingly large number continue in specialized work, here or elsewhere, toward graduate degrees.

The major curricula from which the agricultural student may make his selections are as follows:

1. General agriculture
2. Agricultural and biological chemistry
3. Animal husbandry
4. Botany and bacteriology
5. Dairy husbandry
6. Entomology
7. Forestry
8. Horticulture
9. Poultry husbandry
10. Teacher preparation

During the freshman and sophomore years, all agricultural students pursue the same general curriculum of fundamental work. During this period, a very few choices or alternative courses are indicated. The purpose of such a scheme is to make possible a deferred decision by the student who is uncertain of his interests, and therefore cannot decide at once on a curriculum. *However, there are definite advantages that accrue from making a proper selection of courses even in the freshman year,* and students are urged to consider their aptitudes, discuss their problems with advisers and heads of departments, and reach decisions as to their curriculum preferences during Freshman week.

In other words, these introductory courses are not electives in the usually accepted sense, to be taken or not at the discretion of the student, but rather they make possible the rounding-out of the fundamental work in the interests of perfecting the major curriculum to be finally completed. The highly technical or semi-professional curricula, such as agricultural and biological chemistry, entomology, forestry, and teacher preparation, involve sequences of subject matter for the whole four years, and so much of it that certain courses even in the freshman year must be carefully selected and prescribed. Other curricula may be a little less exacting, but there will always be a decided advantage to the student in making an early and accurate selection of his major work.

The earlier a student can decide on his curriculum, the surer will the prescribed work for a degree be completed in the allotted time, and the more

easily will he find opportunities for choosing electives to suit his personal desires.

The general descriptions of curricula which follow should be carefully studied.

General Agriculture.—This curriculum is offered for the student who wishes to secure a broad, general training in many important branches of agriculture without specializing unduly in any particular department. To this end, it is assumed that the student will take during his four years an average of about two semester courses in at least ten of the following departments: agronomy, animal husbandry, agricultural chemistry, agricultural economics, botany, chemistry, dairy husbandry, economics, English, entomology, forestry, horticulture, mathematics, physics, poultry husbandry, zoölogy. A majority of these covering work in other colleges is required during the freshman and sophomore years, but several in the College of Agriculture may be elected in the freshman or sophomore year. In addition to such of these courses as have been completed by the end of the sophomore year, obviously other advanced and supplementary courses will be required in the junior and senior years. However, a considerably greater choice of subject matter is allowed here than in the more specialized curricula.

Students who expect to engage in farming will find this so-called general curriculum with its wide range of fundamental courses a most profitable one. This curriculum should also prepare for extension work like that of a county agent, a boys' and girls' club leader, a marketing or farm management investigator, or a soils and crops specialist. For those expecting to specialize later in graduate work, the broad foundation of fundamental subject matter made possible by this curriculum should provide a most desirable background.

During the freshman and sophomore years the student should complete at least three introductory courses in the first semesters and four in the second semesters. In the freshman year this might include any of those listed except forestry 5 and 6, and in the sophomore year the elective list is increased by agronomy, both semesters, entomology 1, agricultural engineering 4, agricultural chemistry 2 or 4 and geology (7).

Agricultural and Biological Chemistry.—Students majoring in this curriculum receive training in the various branches of general chemistry and in their application to the growth and development of plants and animals. The methods used in the chemical analysis of plants and agricultural products and in the study of animal nutrition and metabolism are given especial attention. Aside from the technical and general requirements, numerous electives are offered which enable the student to obtain a more general training, to select work in the applied departments of the college, or to obtain the professional work needed for teaching in the schools of New Hampshire. The curriculum is designed to provide a thorough foundation for those expecting to prepare themselves for teaching and research in colleges and experiment stations. The department is fortunate in being associated with the experiment

station and in that connection having charge of the chemical analysis of feeds and fertilizers for the state department of agriculture. This furnishes an opportunity for the student to come in contact with the inspection and research work of the department and to have the benefit of its equipment.

Students who expect to pursue this curriculum must take mathematics 5, 6 in the freshman year and chemistry 47, 48 in the sophomore year. Additional credits as needed may be elected from the introductory courses.

ANIMAL HUSBANDRY.—This curriculum is offered to students who wish a specialized training in the practical and intelligent management, selection, breeding, and feeding of livestock, including horses, beef and dual-purpose cattle, sheep, and swine. Special attention is given to studies which will prepare students for various lines of work, including the extension service, production and sales work with feed concerns and packing plants, and the management of estates and general livestock farms.

Many have found this curriculum excellent preparation for advanced work in veterinary science, civil service, and other specialized lines.

During the junior and senior years each student is advised to elect as many courses in dairy production as possible, thus obtaining fundamental information about a closely-related type of enterprise.

Various anatomical models, charts, and lantern slides, and an up-to-date livestock library are available for student use.

Herd books of the most prominent breeds are used for the purpose of familiarizing students with the methods of tracing pedigrees and with the practices of breeders' associations.

Freshmen should complete animal husbandry 1 the first semester, and forestry 2 or horticulture 2 or 14 the second semester. In the sophomore year entomology 1 should be completed in the first semester, together with agricultural engineering or poultry husbandry. During the second semester, agricultural chemistry 4 is expected and animal husbandry 2. Geology may be added to the electives already suggested for the freshman year to make possible the completion of two more courses. Dairy husbandry 2 is not advised in this curriculum.

BOTANY AND BACTERIOLOGY.—The curriculum is flexible and so arranged that students in either the College of Agriculture or the College of Liberal Arts may take major work in the department. The work taken may be broadly cultural or the student may specialize with a view to teaching, or in preparation for graduate study.

Introductory or elective courses in the freshman and sophomore years may be selected largely subject to the desires of the student. An extra year of English will be required not later than the junior year.

The department has laboratories and greenhouses equipped for work in general botany, pathology, physiology and bacteriology and a working library of 2,000 volumes. Ample facilities are provided also for advanced work because of the affiliation of the department with the experi-

ment station. The bacteriology laboratory is equipped for work in general and applied bacteriology, and opportunity is provided also for advanced work.

Dairy Husbandry.—Students majoring in dairy husbandry are offered specialized courses in (1) dairy production and (2) dairy products or dairy manufactures. Dairy production courses include a study of the dairy breeds and all phases of care, feeding, management, herd analysis, judging, and selection of dairy cattle. Dairy products courses include a study of market milk, tests of dairy products including the use of the Mojonnier milk tester, dairy bacteriology, and the manufacture of butter, cheese, and ice cream. The dairy herd on the campus, together with the daily-operating market milk pasteurizing and ice cream units in the dairy building, contribute to the practical training of students in any one of several lines of the dairy industry.

The dairy husbandry laboratories, located in the dairy building and in the dairy barn, are well equipped for instructional purposes. The equipment includes power churn, power separator, pasteurizers, coolers, ice cream freezers, bottler, two mechanical refrigeration units and a homogenizer. The milk testing and bacteriological laboratories have equipment necessary for milk testing and inspection, and dairy bacteriology.

Freshmen are advised to take mathematics 5 and 6 if they intend to major in dairy products or dairy manufactures, which makes a full schedule for the year. Other students should complete animal husbandry 1 and forestry 2 or horticulture 2 or 14. All dairy students must complete animal husbandry 1 as freshmen or sophomores, and agricultural chemistry 4 as sophomores. Production students in every case should complete entomology 1 as sophomores. Other introductory courses for the two years may be selected from such titles as the following: agricultural engineering 1 and 4, poultry husbandry 1, and geology (7). Dairy husbandry 2 is not intended for dairy husbandry majors.

Entomology.—The department of entomology offers various courses and selections of courses for students who wish to major in entomology, and especially for students who desire to secure training through which they can later take up one or another aspect of entomology as a profession.

There are several aspects into which entomology naturally divides itself. Each of these represents a definite field of specialization, and an opportunity for professional work according to the training that the student has had. There is definite advantage in deciding on this major early in the course of undergraduate training. Equipment for a professional position is based on suitable undergraduate work to be followed by more fully specialized graduate work.

Outlines of specific, suggested courses of study are available to the student on application at the department office. These outlines refer to the following specialized fields of entomological training, any one of which is offered by the department to students majoring in entomology.

General Entomology.—A broad selection of courses which furnish a suitable background for later specialization in the following: (a) life history studies of insects; (b) control of animal parasites; (c) systematic entomology; and (d) the relation of insects to their environment. Students who are interested in entomology in general, but have not yet determined what special field they might wish to enter, may take this grouping of courses.

Toxicology.—This specialized field relates particularly to the control of insects by chemical means. It is a professional field that is rapidly developing. A student who elects it will be given extensive training in chemistry as well as in entomology, and in graduate work will be expected to give considerable attention to insect physiology.

Medical Entomology.—The undergraduate training looking toward specialization in medical entomology includes courses in zoölogy and human physiology, as well as studies in the life histories of important insects that serve as the transmitting agents for various human diseases and in the means of control of such diseases through control of the insects that transmit them.

Forest Entomology.—This aspect of entomology is closely related to the study of forest practices. Students who specialize in this field will take certain courses in forestry as well as fundamental entomology and specialized studies in the life histories of insects attacking forest and shade trees.

Biologic Control.—Certain fundamentals of general entomology are taken up in the subjects studied by a student majoring in this aspect of entomology. In addition, special attention is given to the relation of various natural enemies to insects, including insect parasites and the effects of fungous and bacterial diseases upon insect life and abundance.

In the freshman year, mathematics 5 and 6 should be completed. In the sophomore year, entomology 1 is required. Other introductory courses may be selected for additional credits to meet the student's special interest needs.

Forestry.—The training and instructional work in forestry is intended to meet the needs of three classes of students: (1) those who wish to secure four years' training in forestry; (2) those who wish to fit themselves for positions in the lumber business; and (3) those who desire a foundation for professional or graduate work in forestry. All students take the same work during the first two years, and their courses of study as juniors and seniors depend on their records as freshmen and sophomores.

General Group.—This group includes those students who wish to secure a sound training in forestry, but who do not care to spend more than four years in college. Considerable latitude is given in the courses which the student may elect, but his efforts are directed toward securing a good general education.

Business Group.—The student who chooses this program of study receives training in the fundamental principles of forestry, and, in addition, elects certain courses in the field of business administration.

Professional Group.—This program of study is designed to fit the student for advanced work at some other institution, where he will be able to satisfy the requirements for the degree of master of forestry in one year. Students who plan to enter the United States forest service, to become teachers, research workers, or consulting foresters, should elect this course. The requirements, however, are high for this group, and only the best students will be encouraged to undertake it.

All freshmen should take forestry 5 and 6. Sophomores will take civil engineering 7 and 8, entomology 1, and forestry 9 and 10. Agricultural chemistry 2, agricultural engineering 4, geology (7) or other introductory courses may be elected.

Horticulture.—The department of horticulture offers instruction which, by thorough preparation in fundamentals, fits the student for intelligent and resourceful production and marketing of fruits and vegetables. Students of superior ability will find it possible, by supplementing their undergraduate work with postgraduate study, to prepare for professional positions in teaching, research, or extension work.

The course in ornamental horticulture and floriculture is designed to fit the student for work on large private estates, in retail florists' ranges, or with nursery companies. It does not presume to prepare professional landscape architects.

Major students in this department must elect a minimum of 25 semester credits of advanced horticultural and related courses. In addition, because fundamental to all horticultural work, the study of economics, of plant physiology, and of the control of insects and diseases is required of all students. Similarly, subject matter in other departments related to the student's chosen field of endeavor may be required at the discretion of the head of the department.

Mathematics 5 and 6 is to be preferred in the freshman year for students who expect to do graduate work. Other students should elect some of the introductory courses for additional credits. Agricultural engineering and any of the horticultural courses listed are recommended.

In the sophomore year, entomology 1 and agricultural chemistry 2 should be completed. Additional credits will then be obtained from the introductory courses previously mentioned and from those in the sophomore list such as animal husbandry 1, poultry husbandry 1, in the first semester; and dairy husbandry 2, forestry 2, geology (7) and horticulture 28 in the second semester.

Poultry Husbandry.—The curriculum in poultry husbandry has been designed to offer students fundamental and special training in the practical as well as professional fields of poultry. The courses are also offered to those majoring in other departments.

A brief but comprehensive period of practical work is offered for those who lack sufficient experience in the actual care and production of chicks and laying birds. All of the facilities of the university poultry plant are available for such students.

During the freshman or sophomore year it is necessary that poultry husbandry 1 be completed, since it is a prerequisite for many of the other advanced courses in this department. Agricultural chemistry 4 should be completed. Any of the other introductory courses in the freshman list are recommended for additional credits except forestry 5 and 6; and in the sophomore year agricultural engineering 4, entomology 1, and geology (7) may be added to the courses available.

Teacher Preparation.—Under the provisions of the Smith-Hughes act, the University of New Hampshire has been designated as the institution in this state for the preparation of teachers of agriculture. This curriculum gives the young man a broad training in the fundamental sciences and in general agriculture. In addition, he receives professional training in such educational subjects as psychology, principles of education and methods of teaching in supervised practice teaching. Students who complete the curriculum and who have had the requisite amount of practical experience on a farm will be accredited as teachers.

There is a rapidly increasing demand for teachers of agriculture in our secondary schools. Local school boards are beginning to appreciate more fully the value of instruction in agriculture both for the boys who will engage in agriculture after leaving high school, and as electives to maintain the interest of those young men who may wish to take at the university further education in this basic industry. As a result, there are many good positions open for the young men who wish to make the teaching of agriculture a profession.

Freshmen may elect any one of the introductory courses for each semester except forestry 5 and 6 and horticulture 26. In the sophomore year more of these same courses may be completed with the addition of geology (7) and possibly agricultural engineering 4, animal husbandry 2 and entomology 1. Poultry husbandry 1 must be elected during the freshman or sophomore years.

Freshman Year

All Curricula

	First Semester Credits	*Second Semester Credits*
Convocation (*Required*)		
Freshman Assembly (*Required First Semester*)		
Mil. Sci. 1, 2	1½	1½
Phys. Ed. 31, 32	½	½
Bot. 1, 2 (*General*)	4	4
Chem. 1, 2 (*General*)	4	4
*Eng. 1, 2 (*Elementary Written and Oral*)	3–0	3–0
Math. 5, 6 (*First Year*) or Math. 21, 22 (*Elements of Analysis*)	3–5	3–5
Elective	0–5	0–5
	18	18

Introductory courses scheduled to satisfy curricula requirements for the freshman year.

First Semester	*Second Semester*
Forestry 5 [3]	Forestry 6 [3]
Agricultural Engineering 1 [3]	Dairy Husbandry 2 [3]
Animal Husbandry 1 [3]	Forestry 2 [3]
Poultry Husbandry 1 [3]	Horticulture 2 or 14 [3]
	Horticulture 26 [3]

Sophomore Year

All Curricula

	First Semester Credits	*Second Semester Credits*
Convocation (*Required*)		
Mil. Sci. 3, 4	1½	1½
Phys. Ed. 33, 34	½	½
Phys. 1, 2 (*Introductory*)	4	4
Agr. Chem. 1 (*Introductory*) or Chem. 47, 48 (*Organic*)	5	0–5
Zoöl. 48 (*General*)		3
Elective	7	4–9
	18	18

Introductory courses scheduled to satisfy curricula requirements for the sophomore year.

First Semester	*Second Semester*
Agronomy 1 [3]	Agronomy 2 [2]
Agricultural Engineering 1 [3]	Agricultural Engineering 4 [1]
Animal Husbandry 1 [3]	Animal Husbandry 2 [1]
Civil Engineering 7 [2]	Civil Engineering 8 [2]
Forestry 9 [3]	Forestry 10 [3]
Entomology 1 [3]	Agricultural Chemistry 2 or 4 [3]
Poultry Husbandry 1 [3]	Dairy Husbandry 2 [3]
	Education 42 [3]
	Forestry 2 [3]
	Geology (7) [3]
	Horticulture 2 or 14 [3]
	Horticulture 28 [3]

* There will be six credits given for this course at the end of the senior year. There will, consequently, be no need to reckon these credits in making up a program of study.

COLLEGE OF AGRICULTURE

GENERAL AGRICULTURE

Junior Year

	First Semester Credits	*Second Semester Credits*
Convocation (*Required*)		
Agr. Econ. 1	3	
Agr. Econ. 3 (*Farm Accounting*)	2	
Agron. 1, 2 (*Soils; Fertilizers*)	3	2
A.H. 3, 2 (*Feeds; Judging*)	3	1
Econ. 1, 2 (*Principles*)	3	3
Elective	4	12
	18	18
Prescribed or Recommended Electives		
Agron. 3, 4 (*Crop Production; Field Crops*)	3	3
Agron. 5 (*Soil Utilization*)	2	
Bact. 1, 2 (*General; Applied*)	4	4
D.H. 7, 10 (*Butter and Cheese; Bacteriology*)	2	4
D.H. 13, 14 (*Judging*)	1	1
Ent. 53, 52 (*Animal; Orchard, Garden*)	2	2
Hort. 1 (*Pomology*)	3	
P.H. 53, 54 (*Problems*)	Arr.	Arr.
Zoöl. 49 (*Genetics*)	2	

Senior Year

Agr. Econ. 5, 4 (*Coöperative Marketing; Farm Management*)	2	3
Eng. 41, (35) (*Expository Writing; Public Speaking*)	2	3
Elective	14	12
	18	18
Prescribed or Recommended Electives		
Agr. Econ. 8 (*Rural Community*)		3
Agr. Eng. 3, 2 (*Electricity; Power and Machinery*)	3	2
A.H. 9, 10 (*Horses, Beef Cattle; Sheep and Swine*)	3	3
D.H. 3, 4 (*Cattle; Milk Production*)	3	3
D.H. 5, 6 (*Market Milk; Ice Cream*)	3	3
Geol. 8 (*Elementary Meteorology*)		2
Others from junior list		

AGRICULTURAL AND BIOLOGICAL CHEMISTRY

Junior Year

	First Semester Credits	*Second Semester Credits*
Convocation (*Required*)		
Agron. 1, 2 (*Soils; Fertilizers*)	3	2
Bact. 1, 2 (*General; Applied*)	4	4
Chem. 25, 26 (*Quantitative and Qualitative*)	3	3
Lang. (*French or German*)	3	3
Elective	5	6
	18	18
Prescribed or Recommended Electives		
Agron. 3, 4 (*Crop Production; Field Crops*)	3	3
A.H. 3 (*Feeds*)	3	
D.H. 3, 2 (*Dairy Cattle; Fundamentals*)	3	3
Geol. 1, 2 (*Principles*)	4	4
Hort. 2 or 14 (*Elementary; Vegetable Gardening*)		3
Math. 7, 8 (*Calculus*)	3	3

Senior Year

Agr. Chem. 51, 52 (*Physiological*)	5	5
Agr. Chem. 53, 54 (*Agricultural Analysis*)	4	4
Eng. 41 (35) (*Expository Writing; Public Speaking*)	2	3
Elective	7	6
	18	18
Prescribed or Recommended Electives		
Agr. Chem. 55 (*Plant Chemistry*)	4	
Bot. 4 (*Physiology*)		4
Chem. 55, 56 (*Theoretical Problems*)	3	3
Chem. 83, 84 (*Elementary Physical*)	5	5
Zoöl. 59, 60 (*Physiology*)	4	4

COLLEGE OF AGRICULTURE

ANIMAL HUSBANDRY

Junior Year

	First Semester Credits	*Second Semester Credits*
Convocation (*Required*)		
Agron. 1, 2 (*Soils; Fertilizers*)	3	2
Agron. 3 (*Crop Production*)	3	
A.H. 5, 6 (*Veterinary Science*)	3	3
A.H. 3 (*Feeds*)	3	
A.H. 4 (*Advanced Judging*)		1
Econ. 1, 2 (*Principles*)	3	3
Elective	3	9
	18	18
Prescribed or Recommended Electives		
Agr. Econ. 1	3	
Agr. Econ. 3 (*Farm Accounting*)	2	
Agron. 4 (*Field Crops*)		3
Bact. 1, 2 (*General; Applied*)	4	4
D.H. 14 (*Judging*)		1
Econ. 24 (*Marketing*)		3
For. 2 (*Principles*)		3
Zoöl. 49 (*Genetics*)	2	

Senior Year

Agr. Econ. 5, 4 (*Coöperative Marketing; Farm Management*)	2	3
A.H. 8 (*Meat and its Products*)		2
A.H. 9, 10 (*Horses, Beef; Sheep, Swine*)	3	3
A.H. 51, 52 (*Breeding; Seminar*)	3	Arr.
D.H. 3, 4 (*Dairy Cattle; Milk Production*)	3	3
Eng. 41, (35) (*Expository Writing; Public Speaking*)	2	3
Elective	5	3
	18	18
Prescribed or Recommended Electives		
Agr. Eng. 3, 2 (*Electricity; Power and Machinery*)	3	2
Geol. 8 (*Elementary Meteorology*)		2
Others from junior list		

BOTANY AND BACTERIOLOGY

Junior Year

	First Semester Credits	*Second Semester Credits*
Convocation (*Required*)		
Eng. (*Advanced*)	3	3
Lang. (*French or German*)	3	3
Elective	12	12
	18	18
Prescribed or Recommended Electives		
Agron. 1, 2 (*Soils; Fertilizers*)	3	2
Bact. 1, 2 (*General; Applied*)	4	4
Bot. 3, 4 (*Histology; Physiology*)	2	4
Chem. 25, 26 (*Quantitative and Qualitative*)	3	3
Chem. 47, 48 (*Organic*)	5	5
Ent. 1 (*Principles*)	3	
Ent. 54 (*Medical Entomology*)		2
Geol. 1, 2 (*Principles*)	4	4
Zoöl. 1, 2 (*Principles of Zoölogy*)	4	4
Zoöl. 49 (*Genetics*)	2	

Senior Year—Botany

Bact. 1, 2 (*General; Applied*)	4	4
Bot. 5, 52 (*Plant Pathology; Systematic*)	3	2
Bot. 53, 54 (*Advanced*)	Arr.	Arr.
Elective	7	8
	18	18

Senior Year—Bacteriology

Bact. 55, 56 (*Advanced*)	Arr.	Arr.
Zoöl. 17, 18 (*Human Anatomy; Physiology*)	3	3
Zoöl. 15, 16 (*Comparative Anatomy of Vertebrates*)	2	2
Elective	9	9
	18	18
Prescribed or Recommended Electives		
Agr. Chem. 51, 52 (*Physiological*)	5	5
Bact. 57, 58 (*Seminar*)	1	1
Eng. 41 (35) (*Expository Writing; Public Speaking*)	2	3
Geol. 1, 2 (*Principles*)	4	4
Ger. 5, 6 (*Scientific German*)	3	3
Geol. 8 (*Elementary Meteorology*)		2
Phys. 14 (*Elementary Optics and Photography*)		3

COLLEGE OF AGRICULTURE

DAIRY HUSBANDRY

Junior Year

	First Semester Credits	Second Semester Credits
Convocation (*Required*)		
Bact. 1 (*General*)	4	
D.H. 7, 10 (*Butter, Cheese; Bacteriology*)	2	4
D.H. 13, 14 (*Judging*)	1	1
Econ. 1, 2 (*Principles*)	3	3
Elective	8	10
	18	18
Prescribed or Recommended Electives		
Acct. 1, 2 (*Elementary*)	4	4
Agr. Econ. 3 (*Farm Accounting*)	2	
Agron. 1, 2 (*Soils; Fertilizers*)	3	2
Agron. 3 (*Crop Production*)	3	
A.H. 5, 6 (*Veterinary Science*)	3	3
Bact. 2 (*Applied*)		4
Zoöl. 49 (*Genetics*)	2	

Senior Year

Agr. Econ. 5, 4 (*Coöperative Marketing; Farm Management*)	2	3
A.H. 3 (*Feeds*)	3	
D.H. 3, 4 (*Cattle; Milk Production*)	3	3
D.H. 5, 6 (*Market Milk; Ice Cream*)	3	3
D.H. 12 (*Seminar*)		2
D.H. 52 (*Advanced Dairy Science*)		2
Eng. 41 (35) (*Expository Writing; Public Speaking*)	2	3
Elective	5	2
	18	18
Prescribed or Recommended Electives		
Agr. Econ. 1	3	
Agr. Eng. 3, 2 (*Electricity; Power and Machinery*)	3	2
Geol. 8 (*Elementary Meteorology*)		2
Others from junior list		

ENTOMOLOGY

Junior Year

	First Semester Credits	*Second Semester Credits*
Convocation (*Required*)		
Bact. 1, 2 (*General; Applied*)	4	4
Econ. 1, 2 (*Principles*)	3	3
Ent. 57, 58 (*Advanced*)	4	4
Elective	7	7
	18	18
Prescribed or Recommended Electives		
Bot. 5, 54 (*Pathology; Advanced*)	3	Arr.
Chem. 25, 26 (*Quantitative and Qualitative*)	3	3
Chem. 47, 48 (*Organic*)	5	5
Chem. 82 (*Physical*)		2
Ent. 54 (*Household*)		2
Ent. 56 (*Forest*)		2
For. 7, 8 (*Mensuration*) or For. 9, 10 (*Silviculture*)	3	3
Lang. (*French or German*)	3	3
Zoöl. 3, 4 (*Hygiene and Sanitation*)	3	3

Senior Year

Eng. 41, (35) (*Expository Writing; Public Speaking*)	2	3
Ent. 59, 60 (*Advanced*)	2–5	2–5
Lang. (*French or German*)	3	3
Elective	8–11	7–10
	18	18
Prescribed or Recommended Electives		
Agr. Chem. 51, 52 (*Physiological*)	5	5
Bot. 3, 4 (*Histology; Physiology*)	2	4
Chem. 83, 84 (*Elementary Physical*)	5	5
Zoöl. 51, 52 (*Invertebrates*)	3	3
Zoöl. 53, 54 (*Histology and Development*)	4	4

FORESTRY

Junior Year

	First Semester Credits	Second Semester Credits
Convocation (*Required*)		
Agron. 1 (*Soils*)	3	
Bot. 4 (*Physiology*)		4
Econ. 1, 2 (*Principles*)	3	3
For. 7, 8 (*Mensuration*)	3	3
Elective	9	8
	18	18
Prescribed or Recommended Electives		
Bot. 3, 52 (*Histology; Systematic*)	2	2
Ent. 1, 56 (*Principles; Forest*)	3	2
For. 11, 12 (*Utilization*)	3	3
For. 13, 14 (*Improvements; Fish and Game*)	3	3
Lang. (*French or German*)	3	3
M.E. S5 (*Wood Shop*) } M.E. S12 (*Forge Shop*) }		3

Summer Camp

For. 21 (*Fish and Game Management*)		3
For. 22 (*Timber Survey*), 8 weeks		6

Senior Year

Eng. 41, (35) (*Expository Writing; Public Speaking*)	2	3
For. 19, 20 (*Management*)	4	4
Elective	9	8
	15	15
Prescribed or Recommended Electives		
Bot. 5 (*Pathology*)	3	
For. 15, 16 (*Thesis*)	2 or 3	2 or 3
For. 17 (*Administration*)	3	
For. 52 (*History*)		3
Geol. 8 (*Elementary Meteorology*)		2
Others from junior list		

HORTICULTURE

Junior Year

	First Semester Credits	*Second Semester Credits*
Convocation (*Required*)		
Agron. 1, 2 (*Soils; Fertilizers*)	3	2
Bact. 1 (*General*)	4	
Econ. 1, 2 (*Principles*)	3	3
Ent. 52 (*Orchard and Garden*)		2
Hort. 44 (*Practice*)		5
Zoöl. 49 (*Genetics*)	2	
Elective	6	6
	18	18
Prescribed or Recommended Electives		
Agr. Econ. 3 (*Accounting*)	2	
Agron. 3 (*Crop Production*)	3	
Bot. 52 (*Systematic*)		2
Hort. 3, 2 (*Fruit Judging; Elementary*)	2	3
Hort. 27, 26 (*Ornamentals*)	3	3
Hort. 38 (*Floriculture*)		1
Hort. 48 (*Beekeeping*)		2
Geol. 8 (*Elementary Meteorology*)		2
P.H. 8 (*Incubation*)		3

Senior Year

Agr. Econ. 5, 4 (*Coöperative Marketing; Farm Management*)	2	3
Bot. 5, 4 (*Pathology; Physiology*)	3	4
Eng. 41, (35) (*Expository Writing; Public Speaking*)	2	3
Ent. 52 (*Orchard and Garden*)		2
Hort. 91, 92 (*Seminar*)	2	2
Elective	9	4
	18	18
Prescribed or Recommended Electives		
Agr. Econ. 1	3	
Agr. Eng. 3 (*Electricity*)	3	
Hort. 1, 54 (*Pomology; Advanced*)	3	3
Hort. 39 (*Greenhouse*)	3	
Hort. 49 (*Beekeeping*)	2	
Hort. 65 (*Advanced Vegetable Gardening*)	3	
Others from junior list		

POULTRY HUSBANDRY

Junior Year

	First Semester Credits	*Second Semester Credits*
Convocation (*Required*)		
Agr. Econ. 3 (*Farm Accounting*)	2	
Econ. 1, 2 (*Principles*)	3	3
P.H. 7, 6 (*Judging; Breeding*)	3	2
P.H. 13, 14 (*Management; Practice*)	3	4
Zoöl. 49 (*Genetics*)	2	
Elective	5	9
	18	18
Prescribed or Recommended Electives		
Agr. Eng. 3, 2 (*Electricity; Power and Machinery*)	3	2
Agron. 1, 2 (*Soils; Fertilizers*)	3	2
Agron. 3, 4 (*Crop Production; Field Crops*)	3	3
A.H. 3 (*Feeds*)	3	
Bact. 1, 2 (*General; Applied*)	4	4

Senior Year

Eng. 41, (35) (*Expository Writing; Public Speaking*)	2	3
P.H. 9, 8 (*Marketing; Incubation*)	2	3
P.H. 15, 10 (*Diseases; Feeding*)	4	3
P.H. 17, 18 (*Seminar*)	1	1
Elective	9	8
	18	18
Prescribed or Recommended Electives		
Agr. Econ. 5, 4 (*Coöperative Marketing; Farm Management*)	2	3
Geol. 8 (*Elementary Meteorology*)		2
P.H. 12 (*Housing*)		2
P.H. 53, 54 (*Problems*)	Arr.	Arr.
Others from junior list		

TEACHER PREPARATION IN AGRICULTURE

Junior Year

	First Semester Credits	*Second Semester Credits*
Convocation (*Required*)		
Agr. Econ. 3 (*Farm Accounting*)	2	
Agr. Econ. 5 (*Coöperative Marketing*)	2	
Agron. 1, 2 (*Soils; Fertilizers*)	3	2
Agron. 4 (*Field Crops*)		3
A.H. 3 (*Feeds*)	3	
D.H. 4 (*Milk Production*)		3
Educ. 31 (*General Psychology*)	3	
Educ. 42 (*Psychological Principles of Secondary Education*)		3
Educ. 92 (*Problems in Teaching of High School Agriculture*)		3
M.E. S23 (*Farm Shop*)	2	
Elective	3	4
	18	18

Prescribed or Recommended Electives

P.H. 11 (*Poultry for Teachers*)	2	
P.H. 13 (*Management*)	3	

For others, refer to lists in general agriculture.

Senior Year

Agr. Econ. 4 (*Farm Management*)		3
Agr. Econ. 8 (*Rural Community*)		3
Agr. Eng. 6 (*Farm Shop*)		2
D.H. 14 (*Judging*)		1
Educ. 93, (45) (*Supervised Teaching; State Law*)	18	2
Elective		7
	18	18

COLLEGE OF LIBERAL ARTS

C. Floyd Jackson, *Dean*

DEPARTMENTS

Economics and Accounting
Education
English
Geology
Government
History
Home Economics
Hotel Administration
Languages
Music
Physical Education for Women
Sociology
Zoölogy

Programs of Study—Requirements for Degrees

Each candidate for a degree in the College of Liberal Arts must complete 128 semester credits of which 64 must be with a grade of 70 or better, and in addition must fulfill the requirements of the General Liberal Arts curriculum or the requirements of one of the prescribed curricula offered by the College of Liberal Arts.

1. General Liberal Arts Curriculum*

This curriculum provides a general college training which especially prepares for citizenship, secondary school teaching, business, or graduate study. By means of the group system of elective studies an opportunity is given the student to secure an A.B. or B.S. degree.

A. General University Requirements

Convocation	Freshman, sophomore, and junior years
Freshman assembly	Freshman year—first semester
Physical education for men	Freshman and sophomore years
Physical education for women	Freshman, sophomore, and junior years
Military science	Freshman and sophomore years

B. Special Freshman Requirements

The completion of the following special freshman courses:
†English 1 and 2
†Introduction to contemporary civilization, history 1 and 2
†A biological science (botany 1, 2, or zoölogy 1, 2), or a physical science (chemistry 1, 2; geology 1, 2, or physics 1, 2).

* For details see pp. 127–128.
† Not counted toward the fulfillment of major or group requirements.

C. Special Language and English Requirements

All students are required to pass a reading test in French, German, Latin, or Spanish before graduation. This test will be based on two years of secondary school language training or the equivalent. Also 12 semester hours of English, including English 1, 2, are required for graduation.

D. Sophomore Group Requirements

Students are required to complete one year, elected from each of the following three groups of courses. Not less than one year's work in any given course shall count toward the fulfillment of this requirement.

Group I:
- (*a*) Mathematics
- (*b*) History
- (*c*) English, French, German, Greek, Latin, Spanish

Group II:

A biological science (botany 1, 2, or zoölogy 1, 2), or a physical science (chemistry 1, 2; geology 1, 2, or physics 1, 2). Students electing a biological science during their freshman year must elect a physical science during their sophomore year, or *vice versa*.

Group III:

Economics, education, government, psychology, philosophy, sociology.

E. Major Requirements

Each student pursuing the General Liberal Arts curriculum in the College of Liberal Arts shall select at the beginning of the sophomore year a major department in which he must pass courses to a total of 24 semester credits with a grade of 75 or better. Courses ordinarily open to freshmen or taken in the freshman year may not be counted toward the fulfillment of the major requirements. Courses in other departments closely related to the major courses may be counted with the consent of the head of the major department.

The following major departments are open to students in the College of Liberal Arts. Students majoring in departments not in the College of Liberal Arts must have their schedules approved by the dean of the College of Liberal Arts.

Botany	History
Chemistry	Home Economics
Economics and Accounting	Languages
Education	Mathematics
English	Music
Entomology	Physical Education for Women
Fine Arts	Physics
Geology	Sociology
Government	Zoölogy

In addition to the above major departments, students following the General Liberal Arts curriculum may select a program of study cutting across departmental or college lines. Students electing such a program, however, will be held for the requirements of the General Liberal Arts curriculum. The following are representative of such programs.

(a) *Applied Biology.*—Although no formal curriculum has been organized, students interested in applied biology will find it possible to select a sequence of courses leading to professional work in this field in coöperation with the state fish and game department. Students interested in this work should confer with the department of zoölogy.

(b) *Fine Arts.*—A number of fields of study in the fine and applied arts within the university are open to students in the College of Liberal Arts who wish to supplement their work in a major department. Students desiring to extend their major programs by such elections should consult with Mr. George R. Thomas of the department of architecture. The various courses in the fine and applied arts are listed in this catalog under the title Fine Arts, see page 205.

(c) *Pre-Dental.*—Since the requirements for entrance into dental school vary considerably, it is thought advisable not to establish a prescribed curriculum preparing for dental work. Many dental schools will accept students at the completion of two or three years of college work. It is advisable, however, for the student to complete the full four years of college training before entering dental school in case he is financially able to do so. In all cases the program of study will be organized to meet the student's convenience on a two-, three-, or four-year basis and in order to meet the requirements of the particular dental school for which he is preparing.

(d) *Pre-Law.*—Students who plan to enter law school upon graduation from college are counselled to major in the department of government. The bar associations and the law schools of the country do not prescribe a specific undergraduate curriculum for future lawyers; but it is generally recognized that the social sciences, history, and English constitute the best general background obtainable for law. There is a temptation for the unadvised to overload their schedules with college law courses in the belief that they are receiving in this manner the best training the college affords. This is a mistake and the student is urged to seek faculty advice as soon as he has made up his mind to train for law. Prompt and proper advice will avoid much difficulty both in college and later in law school.

(e) *Pre-Nursing and Technician Training.*—The requirements of students interested in nursing and technician's training are so varied as to make it impossible to establish a definite curriculum. In general, such students will be expected to include in their programs of study courses in human anatomy and physiology, hygiene and sanitation, certain courses in chemistry, and bacteriology. As a rule it will be found necessary for students to take additional work following graduation.

For pre-nursing training, see the Coöperative Hospital curriculum, page 129.

(f) *Preparation for Teaching.*—Students may prepare for teaching either by completing the requirements of one of the teacher-preparation curricula of the university (see pp. 138–144) or by completing such courses as will meet the teacher-certification requirements of the state in which they desire to teach.*

2. Prescribed Curricula (College of Liberal Arts)

Students may elect a prescribed curriculum only with the consent of the head of the department in which the curriculum is offered. They must also satisfy the special freshman and the special language and English requirements (see B and C under General Liberal Arts curriculum) and must pass at least 24 semester credits of the required courses in the prescribed curriculum with a grade of 75 or better.

The following prescribed curricula lead to the degree of Bachelor of Science: Coöperative Hospital; General Business; Home Economics—Teacher Preparation for Secondary Schools and Extension, Institutional Management; Hotel Administration; Pre-Medical; Secretarial; Social Service.

(a) *Coöperative Hospital Curriculum.* A coöperative agreement has been reached between the University of New Hampshire and the Elliot Hospital of Manchester whereby a student may complete work in five years for the Bachelor of Science degree granted by the University of New Hampshire, and graduate from the Elliot Hospital prepared to take examinations for registration as a nurse. Students electing this curriculum are admitted to the Elliot Hospital only after satisfactorily completing the requirements of the freshman and sophomore years at the University of New Hampshire. The work in the succeeding three years will be conducted at the hospital. (For details, see p. 129.)

(b) *General Business Curriculum.*—Students who wish to prepare for a business career should take the curriculum in general business. This curriculum has been planned so as to offer the foundation for a broad cultural education during the first and second years of the curriculum, and to introduce the student to the business courses in the junior and senior years. (For details, see p. 130.)

(c) *Home Economics Curricula.*—The curricula in home economics are planned to meet the demands for scientific training in homemaking; also special curricula are outlined for students who wish to enter fields of professional activity in educational, extension, and institutional work. Several courses are offered as electives for those who do not wish to major in home economics but who desire to study one or more phases of homemaking. (For details, see pp. 131–132.)

The courses in home economics are based upon the physical, biological, and social sciences. The technical work in foods, nutrition, and dietetics

* See University Teacher-Preparation Curricula, p. 141.

is based upon the principles of chemistry and physiology; that in sanitation necessitates a knowledge of chemistry and bacteriology. Home administration and the care and education of children demand knowledge of the principles of human nutrition and dietetics, as well as of economics, psychology and sociology. The study of color and design is fundamental to the courses in costume design and house decoration.

The home economics curricula offered are as follows:

(1) Teacher Preparation Curriculum for Secondary Schools and Extension. To prepare students to teach home economics in junior and senior high schools and to engage in 4-H club or home demonstration work.

(2) Institutional Management Curriculum. To train students for positions as dietitians and managers in public institutions, such as college dormitories, hospitals, tearooms, cafeterias, etc.

Students wishing to train for homemaking, child guidance, clothing textiles, salesmanship, and interior decoration should take a General Liberal Arts curriculum, majoring in home economics. (See p. 127.)

(d) *Hotel Administration Curriculum.*—This four-year curriculum is designed to train selected young men and women on a semi-vocational plan to undertake hotel work, with emphasis on the problems of the resort hotel. Courses already offered in accounting, engineering, home economics, chemistry, history, languages, economics, and English are combined with courses in the specialized field of hotel operation to make a program of study broad in outlook but directed toward a definite goal.

The basic work lies in four main divisions: foods, engineering, accounting, and specialized hotel work. These courses are required, leaving about one-third of the curriculum for elective work for which subjects in allied fields are suggested. In addition to the curriculum each student will be required to secure a minimum of twenty points of hotel practice. This will be gained through work in hotels where supervision will be given, grade of work reported, and the requirement satisfied at the rate of one point per week of employment. Not over twelve points may be given for any one type of work performed, nor more than twenty-four points from any one hotel. (For details, see pp. 133–134.)

(e) *Pre-Medical Curriculum.*—This curriculum is offered to meet the needs of students who are preparing for the medical profession.

It is highly desirable that a student spend four years at this institution in preparation for a medical training, although some medical colleges do not require a degree for entrance. The four years of pre-medical work will, however, give the student a good cultural foundation for his future medical work. Students who wish to take this curriculum must obtain the permission of the committee on pre-medical instruction.

Students following the prescribed pre-medical curriculum will be eligible for entrance into any Class A medical school. However, owing to the crowded condition of most medical schools, only those students standing in the upper third of their class during their pre-medical work

may be admitted. Some medical institutions restrict the number of students admitted from any one pre-medical school. Preference is always given to those students having the most complete training and highest standing in their pre-medical work. (For details, see p. 135.)

(f) *Secretarial Curriculum.*—This curriculum has been prepared to give a course in secretarial training, based as much as is practical on a liberal education. Its primary purpose is to train students for secretarial positions. It combines the technical training of a business secretary with that of a liberal arts education. (For details, see p. 136.)

(g) *Social Service Curriculum.*—Students may prepare for social work as a career under one of three plans. (a) In every way the most desirable is to take the full four years at the University of New Hampshire as a cultural background preparation for a two-year course in a recognized school of social work. (b) Failing the necessary resources for such extended graduate training, it is possible to acquire the fundamental social service principles and techniques by taking the social service curriculum at the University of New Hampshire. (c) To meet the needs of students desiring supervised urban training, three years may be taken at the University of New Hampshire, and the fourth at Simmons college or another approved school of social work. The year's residence requirement will be waived and the degree of bachelor of science will be awarded by the University of New Hampshire on the successful completion of the fourth year in such a school.

Social service includes, among others, the following fields: family case work, child caring, child placement, settlement and neighborhood house, institutional work for defectives and dependents, municipal and county relief work, probation, correctional school and prison service, Y.M.C.A. and Y.W.C.A. secretarial service, municipal playground direction, child guidance clinics, community chest work, consular and foreign commercial service, rural community organization, etc.

COLLEGE OF LIBERAL ARTS

GENERAL LIBERAL ARTS CURRICULUM

Freshman Year

All Curricula

	First Semester Credits	*Second Semester Credits*
Convocation (*Required*)		
Freshman Assembly (*Required first semester*)		
Mil. Sci. 1, 2	1½	1½
Phys. Ed. 31, 32 (*For men*)	½	½
Phys. Ed. 1, 2 (*For women*)	2	2
*Eng. 1, 2 (*Elementary Written and Oral English*)		
Hist. 1, 2 (*Introduction to Contemporary Civilization*)	4	4
†A biological science (*Bot. 1, 2 or Zoöl. 1, 2*) or a physical science (*Chem. 1, 2; Geol. 1, 2; or Phys. 1, 2*)	4	4
Suggested electives:		
Bot. 1, 2 (*General Botany*)	4	4
Chem. 1, 2 (*General Chemistry*)	4	4
Eng. 3, 4 (*Survey of English Literature*)	3	3
Eng. 43, 44 (*Reading for Thought*)	3	3
Geol. 1, 2 (*Principles of Geology*)	4	4
Geol. 3 (*Geography of the World*)	3	
Geol. 4 (*Geography of North America*)		3
Govt. 1, 2 (*Citizenship*)	3	3
Hist. 19, 20 (*Modern European History*)	3	3
H.E. 1, 2 (*Homemaking*)	3	3
‡Lang. (*French, German, Latin or Spanish*)	3	3
§Math. 1, 2 (*Algebra, Trigonometry*) or Math. 31, 32 (*Elem. Mathematical Analysis*)	3	3
Music 19, 20 (*Appreciation of Music*)	2	2
Phys. 1, 2 (*Introductory Physics*)	4	4
Soc. 1, 2 (*Principles of Sociology; Social Psychology*)	3	3
Zoöl. 1, 2 (*Basic Principles of Animal Life*)	4	4
	16	16

Sophomore Year

Convocation (*Required*)		
Mil. Sci. 3, 4	1½	1½
Phys. Ed. 33, 34 (*For men*)	½	½
Phys. Ed. 3, 4 (*For women*)	1	1
‖ Eng.	3	3

* There will be six credits given for this course at the end of the senior year. There will, consequently, be no need to reckon these credits in making up a program of study.

† Students electing a biological science during their freshman year must elect a physical science during their sophomore year, or *vice versa*.

‡ All students are required to pass a reading test in French, German, Latin or Spanish before graduation. This test will be based on two years of secondary school language training or the equivalent. Students not passing this test during the Freshman Week examinations are advised to elect language their freshman year. Students will be assigned to language courses on the basis of their grades in the language placement examination given during freshman week.

§ Open only to students with one year each of algebra and plane geometry. Students who wish to continue mathematics beyond the freshman year should take Math. 1, 2.

‖ A second year's work in English is required but may be taken during the freshman, sophomore, junior or senior year. See special language and English requirements.

	First Semester Credits	*Second Semester Credits*
Elect one year's work from each of the three following groups:		
Group I. Math. (*One year*)	3	3
Hist. (*One year*)	3	3
Lang. (*French, German, Greek, Latin, Spanish*) (*One year*)	3	3
Eng. (*A third year of English*)	3	3
Group II. *A biological science (*Bot. 1, 2; or Zoöl. 1, 2*) or a physical science (*Chem. 1, 2; Geol. 1, 2; or Phys. 1, 2*)	4	4
Group III. Econ. (*One year*)	3	3
Educ. (*One year*)	3	3
Govt. (*One year*)	3	3
Phil. (*One year*)	3	3
Psych. (*One year*)	3	3
Soc. (*One year*)	3	3
Electives to meet semester requirements		
	16	16
Junior Year		
Convocation (*Required*)		
Phys. Ed. 5, 6 (*For women*)	1	1
Major course (*First major course with grade of 75 or better*)	3	3
Major course (*Second major course with grade of 75 or better*)	3	3
Electives to meet semester requirements		
	16	16
Senior Year		
Major course (*Third major course with grade of 75 or better*)	3	3
Major course (*Fourth major course with grade of 75 or better*)	3	3
Electives to meet semester requirements		
	16	16

* Students electing a biological science during their freshman year must elect a physical science during their sophomore year, or *vice versa*.

COLLEGE OF LIBERAL ARTS

COÖPERATIVE HOSPITAL CURRICULUM

	First Semester Credits	*Second Semester Credits*
FRESHMAN YEAR		
Convocation (*Required*)		
Freshman Assembly (*Required first semester*)		
Phys. Ed. 1, 2	2	2
Eng. 1, 2 (*Elementary Written and Oral English*)	3	3
Hist. 1, 2 (*Introduction to Contemporary Civilization*)	4	4
Zoöl. 1, 2 (*Principles of Zoölogy*)	4	4
Chem. 1, 2 (*General Chemistry*)	4	4
	17	17
SOPHOMORE YEAR		
Convocation (*Required*)		
Phys. Ed. 3, 4	1	1
Eng. (*Second year of English*)	3	3
Zoöl. 17, 18 (*Human Anatomy and Physiology*)	3	3
Bact. 1, 2 (*General and Applied Bacteriology*)	4	4
Zoöl. 3, 4 (*Hygiene and Sanitation*)	3	3
Elective: Other than in the natural sciences	3	3
	17	17
JUNIOR YEAR		
Sociology	3	3
Probation period, 4 months		
Materia Medica and Therapeutics		
Surgery and Gynecology		
Medicine		
Hygiene		
INTERMEDIATE YEAR		
Psychology	3	3
Pediatrics		
Neurology		
Surgery		
X-Ray		
Dermatology		
Obstetrics		
Eye, Ear, Nose, Throat		
Orthopedics		
District Nursing		
SENIOR YEAR		
Psychiatry		
Contagious diseases		
Operating room		
Diet kitchen		
Obstetrics case room		

At the end of the senior year, a coöperative comprehensive examination will be given by the board of examiners to be composed of members of the university staff as well as others selected from a medical school. If necessary, at the completion of the senior year, students will be required to make up any hospital time lost.

UNIVERSITY OF NEW HAMPSHIRE

GENERAL BUSINESS CURRICULUM

Freshman Year

	First Semester Credits	*Second Semester Credits*
See freshman requirements, page 127.		
Suggested elective:		
Math. 31, 32 (*Elementary Mathematical Analysis*)	3	3
	16	16

Sophomore Year

Convocation (*Required*)		
Mil. Sci. 3, 4	1½	1½
Phys. Ed. 33, 34	½	½
*Eng. (*A second year of English*)	3	3
Acct. 1, 2 (*Elementary Accounting*)	4	4
Econ. 1, 2 (*Principles of Economics*)	3	3
Econ. 3 (*Economic and Commercial Development of the U. S.*)	3	
Econ. 4 (*Economic and Commercial Geography*)		3
Electives to meet semester requirements		
	16	16

Junior Year

Convocation (*Required*)		
Acct. 3, 4 (*Intermediate Accounting*)	4	4
Econ. 21, 22 (*Commercial Law*)	3	3
Econ. 23 (*Public Regulation of Business*)	3	
Econ. 24 (*Marketing*)		3
Electives		
	16	16

Senior Year

Econ. 53 (*Money and Banking*)	3	
Econ. 51 (*Labor Problems*)	3	
Electives to meet semester requirements		
	16	16

* A second year of English must be taken before graduation.

COLLEGE OF LIBERAL ARTS

HOME ECONOMICS CURRICULA

A. Teacher Preparation for Secondary Schools and Extension
B. Institutional Management

Freshman Year

	First Semester Credits	*Second Semester Credits*
See freshman requirements, page 127.		
Suggested elective:		
H.E. 1, 2 (*Homemaking*)	3	3
	16	16

Sophomore Year

Convocation (*Required*)		
Phys. Ed. 3, 4	1	1
*Eng. (*A second year of English*)	3	3
Chem. 1, 2 or 11, 12 (*General Chemistry*) (*Survey of Chemistry*)	2–4	2–4
H.E. 3, 4 (*Clothing Selection*)	3	3
H.E. 15, 16 (*Foods*)	3	3
Suggested electives:		
†Educ. 42 (*Psych. Prin. of Secondary Education*)		3
Educ. 11 (*Prin. of Human Behavior*)	3	
	16	16

Junior Year

Convocation (*Required*)		
Phys. Ed. 5, 6	1	1
‡Agr. Chem. 5 (*Organic and Biol. Chem.*)	5	
‡Agr. Chem. 6 (*Chem. of Food and Nutrition*)		3
H.E. 20 (*Dietetics*)		3
†Educ. 51, 52 (*Soc. Prin. of Secondary Education*)	3	3
H.E. 31, 32 (*Home Building and Furnishing*)	3	3
†H.E. 5, 6 (*Clothing Construction*)	2	2
H.E. 25, 26 (*Child Development*)	3	3
Electives to meet semester requirements		
Suggested elective, Teacher Preparation:		
Agr. Eco. 8 (*The Rural Community*)		3
	17	18

* A second year of English must be taken before graduation.
† Teacher preparation majors only
‡ Required of students who intend to become hospital dietitians; elective for others.

UNIVERSITY OF NEW HAMPSHIRE

A. TEACHER PREPARATION CURRICULUM FOR SECONDARY SCHOOLS AND EXTENSION

Senior Year

	First Semester Credits		*Second Semester Credits*
H.E. 33 (*Home Management*)	3		
H.E. 35 (*Home Management House*)	3		
H.E.-Ed. 91 (*Problems in the Teaching of High School Home Economics*)	3		
H.E.-Ed. 94 (*Supervised Teaching*)			10
H.E.-Ed. 96 (*Seminar*)			3
Suggested elective:			
§Educ. 45 or (45) (*N. H. State Program of Studies and School Law*)	2	or	2
Electives to meet semester requirements			
	16		16

B. INSTITUTIONAL MANAGEMENT CURRICULUM

H.E. 33 (*Home Management*)	3		
H.E. (35) (*Home Management House*)			3
H.E. 17, 18 (*Advanced Foods*)	2		3
H.E. 41 (*Institutional Management*)	3		
H.E. 43, 44 (*Institutional Practice*)	2		2
H.E. 19 (*Nutrition*)	2		
Acct. 1, 2 (*Elementary Accounting*)	4		4
Electives to meet semester requirements			
	16		16

§ Required of students expecting to teach in New Hampshire.

COLLEGE OF LIBERAL ARTS

HOTEL ADMINISTRATION CURRICULUM

Freshman Year

	First Semester Credits	*Second Semester Credits*
See freshman requirements, page 127.		
Suggested electives:		
Chem. 1, 2 (*General Chemistry*)	4	4
H.A. 1 (*Orientation*)	1	
M.E. (1) (*Engineering Drawing*)		2
Acct. 1, 2 (*Elementary Accounting*)	4	4
H.A. 40 (*Lectures on Hotel Management*)		1
	16	16

Sophomore Year

Convocation (*Required*)		
Mil. Sci. 3, 4	1½	1½
Phys. Ed. 33, 34	½	½
*English (*A second year of English*)	3	3
Acct. 9, 10 (*Hotel Accounting*)	3	3
H.E. 15, 16 (*Foods*)	3	3
Econ. 1, 2 (*Principles of Economics*)	3	3
H.A. 21, 22 (*Introductory Hotel Engineering*)	4	4
H.A. 42 (*Lectures on Hotel Management*)		1
Suggested electives:		
Hort. 1 (*Harvesting and Marketing of Fruits*)	3	
Hort. 28 (*Elementary Landscape Gardening*)		3
Ent. 54 (*Household Insects; Medical Entomology*)		2
Ag. Chem. 5 (*Organic and Biological Chemistry*)	5	
Ag. Chem. 6 (*Chemistry of Food and Nutrition*)		3
	16	16

* A second year of English must be taken before graduation.

Junior Year

	First Semester Credits	Second Semester Credits
H.E. (*Quantity Foods*)	3	3
Psych. 31 (*General Psychology*)	3	
Psych. 44 (*Psychology of Industry*)		3
H.E. 46 (*Furniture and Textiles*)		3
H.A. 5 (*Hotel Operation*)	3	
H.A. 44 (*Lectures on Hotel Management*)		1
E.E. 31 (*Circuits and Appliances*)	4	
M.E. 40 (*Heating and Ventilating*)	2	
Suggested electives:		
See sophomore electives		
Econ. 23 (*Public Regulation of Business*)	3	
Econ. 53, 54 (*Money and Banking*)	3	3
A.H. 8 (*Meat and Its Products; Livestock Markets*)		2
Bact. 1 (*General Bacteriology*)	4	
Bact. 2 (*Applied Bacteriology*)		4
Soc. 88 (*Recreation and Leisure*)		3
	16	16

Senior Year

H.A. 7 (*Hotel Public Relations*)	2	
H.A. 8 (*Front Office Procedure*)		1
H.A. 46 (*Lectures on Hotel Management*)		1
Econ. 21, 22 (*Commercial Law*)	3	3
Suggested electives:		
See other years		
Geol. 4 (*Geography of North America*)		3
M.E. 5, 6 (*Mechanical Laboratory*)	1	1
Acct. 5, 6 (*Advanced Accounting*)	4	4
Acct. 7, 8 (*Cost Accounting*)	4	4
H.E. (*Menu Planning*)		1
Arch. 19, 20 (*Building Construction*)	3	3
	16	16

COLLEGE OF LIBERAL ARTS

PRE-MEDICAL CURRICULUM *

	First Semester Credits	*Second Semester Credits*
See freshman requirements, page 127.		
Suggested electives:		
Chem. 1, 2 (*General Chemistry*)	4	4
Zoöl. 1, 2 (*Principles of Zoölogy*)	4	4
	16	16

Sophomore Year

Convocation (*Required*)		
Mil. Sci. 3, 4	1½	1½
Phys. Ed. 33, 34	½	½
Eng. (*Second year of English*)	3	3
Chem. 25, 26 (*Introductory Quantitative and Qualitative Analysis*)	3	3
Zoöl. 15, 16 (*Comparative Anatomy of the Vertebrates*)	3	3
Suggested elective:		
Lang. (*French or German*)	3	3
	16	16

Junior Year

Convocation (*Required*)		
Phys. 5, 6 (*Pre-Medical Physics*)	5	5
Chem. 53, 54 (*Organic Chemistry*)	5	5
Suggested electives:		
Advanced Chemistry	4	4
Economics	3	3
Advanced English	3	3
Foreign Language	3	3
Government	3	3
History	3	3
Mathematics	4	4
Psychology	3	3
Sociology	3	3
Advanced Zoölogy	4	4
	16	16

Senior Year

Adv. Zoöl.	4	4
Suggested electives:		
Advanced Chemistry	4	4
Economics	3	3
Advanced English	3	3
Foreign Language	3	3
Government	3	3
History	3	3
Mathematics	4	4
Psychology	3	3
Sociology	3	3
Advanced Zoölogy	4	4
	16	16

* Students who wish to take the pre-medical curriculum must obtain the permission of the committee on pre-medical instruction.

UNIVERSITY OF NEW HAMPSHIRE

SECRETARIAL CURRICULUM *

Freshman Year

	First Semester Credits	*Second Semester Credits*
See freshman requirements, page 127.		
Suggested elective:		
Lang. or Math. 31, 32	3	3
	16	16

Sophomore Year

Convocation (*Required*)		
Phys. Ed. 3, 4	1	1
Eng. (*A second year of English*)	3	3
Econ. 3 (*Economic and Commercial Development of the U. S.*)	3	
Econ. 4 (*Economic and Commercial Geography*)		3
Acct. 1, 2 (*Elementary Accounting*)	4	4
Suggested electives to meet semester requirements: Education, Language, Statistics, Sociology		
	16	16

Junior Year

Convocation (*Required*)		
Phys. Ed. 5, 6	1	1
Shorthand 1, 2	3	3
Typewriting 7, 8	2	2
Econ. 1, 2 (*Principles of Economics*)	3	3
Electives to meet semester requirements		
	16	16

Senior Year

†Advanced Shorthand 3, 4	3	3
†Advanced Typewriting 9, 10	2	2
Electives to meet semester requirements		
	16	16

* Students preparing to teach secretarial subjects must elect in addition a sufficient number of courses in economics, accounting, and education to meet state requirements.

† A grade of 70 or better in typewriting 7 and 8 will be required of students electing typewriting 9 and 10; and a grade of 70 or better in shorthand 1 and 2 will be required of students electing shorthand 3 and 4.

COLLEGE OF LIBERAL ARTS

SOCIAL SERVICE CURRICULUM

Freshman Year

	First Semester Credits		Second Semester Credits
See freshman requirements, page 127.			
Suggested electives:			
Zoöl. 1, 2 (*Principles of Zoölogy*)	4		4
Soc. 1 (*Principles of Sociology*)	3		
Soc. 2 (*Social Psychology*)			3
	16		16

Sophomore Year

Convocation (*Required*)			
Mil. Sci. 3, 4	1½		1½
Phys. Ed. 33, 34 (*For Men*)	½		½
Phys. Ed. 3, 4 (*For Women*)	1		1
Psych. 31, (31) (*General Psychology*)	3	or	3
Soc. 61 (*Social Pathology*)	3		
Soc. 62 (*Community Organization*)			3
Zoöl. 3, 4 (*Hygiene and Sanitation*)	3		3
Suggested Electives:			
H.E. 25, 26 (*Child Development*)	3		3
Hist. 7, 8 (*The United States from 1790 to 1920*)	3		3
Typewriting 7, 8	2		2
	16		16

Junior Year

Convocation (*Required*)			
Phys. Ed. 5, 6 (*For Women*)	1		1
Soc. 71 (*Crime and Its Social Treatment*)	3		
Soc. 72 (*The Family*)			3
Soc. 75 (*Methods of Social Research*)	3		
Soc. 76 (*Methods of Social Case Work*)			3
Psych. 64 (*Abnormal Psychology and Mental Hygiene*)			3
Suggested Electives:			
Econ. 1, 2 (*Principles of Economics*)	3		3
Govt. 3, 4 (*American Government*)	3		3
	16		16

Eight weeks summer social service field work with an approved agency. (Two credits may be used for major credits.)

Senior Year

Soc. 95, 96 (*Sociological Research*)	3		3
Soc. 97, 98 (*Social Service and Field Work*)	3		3
Soc. 88 (*Recreation and Leisure*)			3
Soc. 84 (*Methods of Social Progress*)			3
Suggested Electives:			
Eng. 35 (35) (*Public Speaking*)	3	or	3
Eng. 41 (41) (*Expository Writing*)	3	or	3
Zoöl. 5, 6 (*Organic Evolution*)	3		3
	16		16

UNIVERSITY OF NEW HAMPSHIRE

University Teacher Preparation Curricula

The University of New Hampshire has accepted the responsibility of preparing teachers for the secondary schools of New Hampshire and neighboring states.

The University Teacher Preparation Curriculum.—The University teacher preparation curriculum presented on page 142 of this catalog includes the basic courses which it is believed are needed in the preparation of secondary-school teachers. These courses are designed to give thorough preparation in subject-matter fields in which the individual desires to teach. The courses in education aim to develop an appreciative understanding of adolescents and their educational needs, of our democratic society and its needs which our secondary schools should endeavor to meet, of the objectives and techniques of secondary-school teaching, and of the problems of teaching peculiar to the subject-matter fields in which the student intends to teach. The curriculum also includes a semester of supervised teaching designed to give prospective teachers opportunity to teach under supervision but also under as nearly normal conditions as can be arranged.

It is important to note that the program of this curriculum may be completed not only by students majoring in the department of education, but also by students majoring in any of the departments of the university offering work the subject-matter of which is offered in secondary schools. General Arts curriculum students satisfactorily completing this curriculum are released from the sophomore group requirements of the General Liberal Arts curriculum (see p. 127) and are entitled to the degree awarded to students majoring in their respective subjects. Students satisfactorily completing this curriculum are entitled to a certificate indicating the fact.

This curriculum is sufficiently flexible to provide the differentiation necessary to meet the needs of students who may be planning to teach: (1) English and the foreign languages, (2) English and the social studies, (3) mathematics and the biological or physical sciences, or (4) the commercial subjects. Students who are planning to teach the commercial subjects take their teaching major and minors in the field of economics and commerce.

Freshmen who plan to complete the university teacher preparation curriculum in the teaching of history or social studies should elect European history (History 19, 20).

Since the State of New Hampshire requires each candidate for certification to be prepared to teach three subjects which are referred to as "teaching major" and first and second "teaching minors,"* the university teacher preparation curriculum includes the requirement of the satisfactory completion of 24 semester credits in a teaching major and

* The requirements of the State of New Hampshire are a teaching major of 18 semester credits, a first teaching minor of 12 semester credits, and a second teaching minor of 6 semester credits. For detailed information concerning teaching majors and minors, consult the department of education.

of 12 semester credits in each of two teaching minors. This work may include any courses in the respective subject-matter fields taken in college. The student before registering for supervised teaching must complete with an average grade of 75 or better, at least 18 semester credits in the subject-matter field in which he desires to teach under supervision.

COURSES IN PROBLEMS IN THE TEACHING OF HIGH SCHOOL SUBJECTS.—The courses in problems in the teaching of high school subjects are listed on pages 187–188. From these the student planning to complete the university teacher preparation curriculum selects his courses in his teaching major and minor fields. To be eligible for supervised teaching the student must complete this course in his teaching major with a grade of at least 75.

COURSES IN SUPERVISED TEACHING.—The work in supervised teaching is under the direction of the professor and associate professor of education serving as director and the associate director of student teaching. Students teach under the general direction of the members of the university faculty conducting the courses in problems of teaching the various school subjects. Students teach under the immediate direction of selected classroom teachers in high schools approved by the university.

In the supervised teaching courses the student participates in the conduct of class exercises and in the control of the classroom, at first chiefly as an observer, but gradually entering into teacher responsibilities until complete charge of the classroom is secured. Frequent conferences and discussions.

This work is required in the university teacher preparation curriculum, but will be open only to students whose applications are approved by the head of the department of education and the supervisor of student teaching in the subject or subjects in which the applicant desires to do supervised teaching. Applications should be filed in the office of the department of education in October of the academic year in which the supervised teaching is to be done. No applications will be considered unless the applicant has completed with a grade of at least 75 the following courses in Education: 11 or 41, and 42, 51, 52, 61 and, with an average grade of 75 or better, at least 18 semester credits in the subject-matter field in which he desires to teach under supervision.

The applicant must also complete with a grade of at least 75 a course in the problems of teaching the subject in which he desires to do supervised teaching.

COLLEGE OF AGRICULTURE TEACHER PREPARATION CURRICULUM.—Under the provisions of the Smith-Hughes act, the University of New Hampshire has been designated as the institution in this state for the preparation of teachers of agriculture. The College of Agriculture teacher preparation curriculum gives the young man a broad training in the fundamental sciences and in general agriculture. In addition, he receives professional training in such educational subjects as psychology, principles of education, methods of teaching and supervised student

teaching. Students who complete the curriculum and who have had the requisite amount of practical experience on a farm will be accredited as teachers.

For information concerning the teacher-preparation work offered in the College of Agriculture, see description of the College of Agriculture teacher preparation curriculum on pages 109, 110, 120 of this catalog.

Home Economics Teacher Preparation Curriculum.—To meet the demand for teachers of home economics in the junior and senior high schools the university has organized the home economics teacher preparation curriculum, details of which may be found on pages 125, 131, 132 of this catalog.

The University Physical Education Teacher Preparation Curriculum for Men.—For men students who plan to prepare themselves for positions as teachers of physical education or directors of physical education, the university has organized the university physical education teacher preparation curriculum for men (see p. 143). This curriculum is a modification of the university teacher preparation curriculum, which will enable men to prepare themselves to teach in two subject-matter fields as well as in physical education. It is open to men who have satisfactorily completed the freshman year, and are approved by the department of physical education as physical education majors. Freshmen who desire to become physical education majors should elect zoölogy 1, 2 as their freshman science course. The satisfactory completion of this curriculum will entitle the student, in addition to his diploma, to a certificate indicating the fact, provided the student has passed certain standard tests in swimming set forth by the American Red Cross.

Sophomores who have been approved as physical education majors should enroll in the section of zoölogy 17, 18 for majors in physical education as this course is basic to most of the courses in physical education required in the university physical education teacher preparation curriculum. They should also enroll in physical education 23, principles of physical education, and physical education 24, camp counseling.

Junior physical education majors should include in their programs physical education 61, problems of teaching in physical education, and physical education 35, play and recreation, or physical education 36, camp administration, or sociology 88, recreation and leisure.

Senior physical education majors should include in their programs physical education 65, administration of physical education in secondary schools, and education-physical education 93 (93), directed teaching in physical education.

Physical education majors who are candidates for the university physical education teacher preparation certificate must satisfactorily complete the work of two of five of the Problems of Coaching courses (physical education 40, 45, 46, 47, 48) in their junior and senior years.

Where it is possible, student teachers, who are physical education majors, will be given an opportunity to do supervised teaching in physi-

cal education in the field and will be enrolled for education-physical education 94.

THE UNIVERSITY PHYSICAL EDUCATION TEACHER PREPARATION CURRICULUM FOR WOMEN.—For women students who plan to prepare themselves for positions as teachers of physical education, the university has organized the university physical education teacher preparation curriculum for women (see page 144). This curriculum is similar to the corresponding curriculum for men. Freshmen, who desire to become physical education majors, should elect zoölogy 1 and 2 as their freshman science course.

Sophomores who have been approved as physical education majors should enroll in zoölogy 3, 4. They should also enroll in physical education 13, 14; physical education 23, principles of physical education; and physical education 24, camp counseling.

Junior physical education majors should include in their programs physical education 15, 16; physical education 37, 38, the theory and coaching of athletics; physical education 35, play and recreation; and physical education 36, camp administration.

In the senior year physical education majors should enroll in physical education 17, 18; physical education 41, 42, remedial gymnastics and massage; and P-E 91, 92, problems in the teaching of physical education for women and supervised teaching. For courses outside of the physical education department which are required of physical education majors in the teacher preparation curriculum, see page 144.

GUIDANCE OF STUDENTS PREPARING TO TEACH.—While the university has organized curricula designed to prepare students for the profession of teaching, it also recognizes the fact that there are students who are only interested in meeting state teacher certification requirements. The department of education endeavors to keep its file of teacher certification requirements up to date. Students not following any of the university teacher preparation curricula should, early in their college courses, consult the department of education concerning the requirements of the state in which they desire to teach and the most effective ways in which to meet those requirements.*

* The New Hampshire State board of education grants a license to teach in New Hampshire secondary schools to candidates whose courses have included twelve semester hours of college work in education. All candidates must pass the examination set by the State board in Program of Studies and School Law. They may offer in lieu of examinations certified college courses in educational psychology, methods of teaching (general or special) and secondary education or school management.

The following courses may be considered as work in education: educational sociology, educational psychology, practice teaching, methods of teaching, history of education, school law, school management, general methods course, special methods course, and work in tests and measurements.

UNIVERSITY TEACHER PREPARATION CURRICULUM *

Freshman Year

	First Semester Credits		Second Semester Credits
See freshman requirements, page 127			
Suggested elective:			
† Teaching major (*First year*)			
	16		16

Sophomore Year ‡

Convocation (*Required*)			
Mil. Sci. 3, 4	1½		1½
Phys. Ed. 33, 34 (*For men*)	½		½
Phys. Ed. 3, 4 (*For women*)	1		1
Eng. (*Advanced English*)	3		3
Educ. 11 (*Principles of Human Behavior*) or 41, 42 (*Psychological Principles of Secondary Education*)	3		3
Educ. 21, 22 (*American Society*)	3		3
Teaching major (*Second year*)	3		3
First teaching minor (*First year*)	3		3
Electives to meet semester requirements			
	16		16

Junior Year

Convocation (*Required*)			
Phys. Ed. 5, 6 (*For women*)	1		1
Educ. 51, 52 (*Social Principles of Secondary Education*)	3		3
Educ. 61, (61) (*Principles and Problems of Teaching in the Secondary School*)	3	or	3
Teaching major (*Third year*)	3		3
First teaching minor (*Second year*)	3		3
Second teaching minor (*First year*)	3		3
Electives to meet semester requirements			
	16		16

Senior Year

§Teaching major (*Fourth year*)	3	
‖First teaching minor (*Third year*)	3	
‖Second teaching minor (*Second year*)	3	3
Problems in teaching (*Major*)	3	
Problems in teaching (*Minor*)	3	
Supervised teaching		6–10
Electives to meet semester requirements		
	16	16

* This is not a prescribed curriculum but an advisory program of study. The program of this curriculum may be completed by students majoring in any of the departments of the university offering work, the subject matter of which is offered in the secondary school. Students must, consequently, fulfill major requirements. A satisfactory completion of this curriculum will entitle the student to a certificate indicating the fact.

† See section covering department of education in later pages for description of teaching major and teaching minor subjects.

‡ General liberal arts students satisfactorily completing this curriculum are released from the sophomore group requirements of this general curriculum and are entitled to receive the degree given to students majoring in their respective subjects.

§ Remainder of the total of 24 semester credits required for the satisfactory completion of the curriculum.

‖ Remainder of the total of 12 semester credits required in each teaching minor.

COLLEGE OF LIBERAL ARTS

UNIVERSITY PHYSICAL EDUCATION TEACHER PREPARATION CURRICULUM FOR MEN

Freshman Year

	First Semester Credits	*Second Semester Credits*
Zoöl. 1, 2 (*Principles of Zoölogy*)	4	4
Basic course in teaching major (*First year*)		
Other courses in accordance with the General Liberal Arts curriculum for freshman year		
	16	16

Sophomore Year

Convocation (*Required*)		
Mil. Sci. 3, 4	1½	1½
Phys. Ed. 33, 34	½	½
Eng. (*A second year*)	3	3
Educ. 11 (*Principles of Human Behavior*)	3	
Educ. 42 (*Phychological Principles of Secondary Education*)		3
Teaching major (*Second year*)	3	3
Zoöl. 17, 18 (*Human Anatomy and Physiology*)	4	4
Phys. Ed. 23 (*Principles of Physical Education*)	3	
Phys. Ed. 24 (*Camp Counseling*)		3
	18	18

Junior Year

Convocation (*Required*)		
Educ. 51, 52 (*Social Principles of Secoudary Education*)	3	3
*Educ. 45 (*N. H. State Program of Studies and School Law*)	2	
Phys. Ed. 61 (*Problems of Teaching in Physical Education*)	3	
Phys. Ed. 35 (*Play and Recreation*) or Phys. Ed. 36 (*Camp Administration*) or Soc. 88 (*Recreation and Leisure*)		3
†Problems of coaching (*P. E. 45, 47 or 48*)	2	
†Problems of coaching (*P. E. 40, 46*)		2
Teaching major	3	3
Elective (*First teaching minor*)	3	3
‡Ed.-P. E. 93 (*Directed Teaching in Physical Education*)		3
Electives		
	19	19

Senior Year

Teaching major	3	
Phys. Ed. 65 (*Administration of Physical Education in Secondary Schools*)	3	
†Problems of coaching (*P. E. 45, 47 or 48*)	2	
‡Ed.-P. E. 93 (*Directed Teaching in Physical Education*)	3	
Problems in teaching (*Teaching major*)	3	
Electives		
Supervised teaching in major or majors		10
	19	10

* For students planning to teach in the State of New Hampshire.

† Two problems of coaching courses are required.

‡ This course is required and may be elected either in the second semester of the junior or senior year or the first semester of the senior year.

UNIVERSITY OF NEW HAMPSHIRE

UNIVERSITY PHYSICAL EDUCATION TEACHER PREPARATION CURRICULUM FOR WOMEN

Freshman Year

	First Semester Credits		Second Semester Credits
Zoöl. 1, 2 (*Principles of Zoölogy*)	4		4
Basic course in teaching major (*First year*)			
Other courses in accordance with the General Liberal Arts curriculum for freshman year			
	16		16

Sophomore Year

Convocation (*Required*)			
Phys. Ed. 3, 4	1		1
Phys. Ed. 13, 14	1		1
Eng. (*A second year*)	3		3
Educ. 11 (*Principles of Human Behavior*)	3		
Educ. 42 (*Psychological Principles of Secondary Education*)			3
Zoöl. 3, 4 (*Hygiene and Sanitation*)	3		3
Teaching major (*Second year*)	3		3
Phys. Ed. 23 (*Principles of Physical Education*)	3		
Phys. Ed. 24 (*Camp Counseling*)			3
	17		17

Junior Year

Convocation (*Required*)			
Phys. Ed. 5, 6	1		1
Educ. 51, 52 (*Social Principles of Secondary Education*)	3		3
Zoöl. 17, 18 (*Human Anatomy and Physiology*)	4		4
Phys. Ed. 15, 16	1		1
Phys. Ed. 37, 38 (*The Theory and Coaching of Athletics*)	3		3
Teaching major (*Third year*)	3		3
Phys. Ed. 35 (*Play and Recreation*)	3		
Phys. Ed. 36 (*Camp Administration*)			3
	18		18

Senior Year

Phys. Ed. 7, 8	1		1
Phys. Ed. 17, 18	1		1
Phys. Ed. 41, 42 (*Remedial Gymnastics and Massage*)	3		3
P-E 91, 92 (*Problems in the Teaching of Physical Education for Women and Supervised Teaching*)	3		3
*Educ. (45) *N. H. State Program of Studies and School Law*)			2
Psych. 53 (*Learning and Measurements*) or	3		
Psych. 64 (*Abnormal Psychology and Mental Hygiene*)		or	3
Teaching major (*Fourth year*)	3		3
Suggested electives:			
Eng. 35, 40 (*Public Speaking; Stage Direction*)			
Music 19, 20 (*Music Appreciation*)			
H. E. 9, 10 (*Applied Design*)			
	16		16

* For students planning to teach in the State of New Hampshire.

COLLEGE OF TECHNOLOGY

GEORGE W. CASE, *Dean*

DEPARTMENTS

ARCHITECTURE
CHEMISTRY AND CHEMICAL ENGINEERING
CIVIL ENGINEERING
ELECTRICAL ENGINEERING
MATHEMATICS
MECHANICAL ENGINEERING
PHYSICS
ENGINEERING EXPERIMENT STATION

REQUIREMENTS FOR DEGREES

Baccalaureate Degrees.—Each candidate for a degree must complete 144 semester credits and the courses required in one of the four-year curricula.

A number of courses in the fine arts are open to students in the College of Technology. These various courses are listed in this catalog under the title Fine Arts; see page 205.

Students interested in these courses should consult with Mr. George R. Thomas of the department of architecture.

Professional Degrees.—Mechanical, electrical, and civil engineering graduates of the University of New Hampshire are eligible to register as candidates for professional degrees in these three branches of engineering.

These degrees will be granted, after the preparation and submission of acceptable theses, to those having not less than four years' satisfactory professional experience subsequent to the bachelor's degree, in which the applicants have wholly or in part supervised, directed or designed engineering work; or have been in responsible charge of instruction or research in engineering. The acceptability of the theses and professional experience is determined by an examining committee.

PROCEDURE.—The procedure for candidates for professional engineering degrees is as follows:

(1) Prepare an outline for a thesis after consultation with the head of the department concerned. This consultation may be by letter.

(2) When the thesis subject is accepted by the head of the department in which the degree is to be taken, the candidate will be registered in the registrar's office. This registration must be completed by October 1st of the academic year in which the degree is to be conferred.

(3) The first draft of the thesis must be submitted to the professor in charge not later than March 1, and the completed thesis in its final form by May 1.

(4) Pass an oral examination at the university covering the candidate's professional practice and the engineering principles underlying the thesis.

(5) Pay the commencement fee of $5.00 at the business office not later than 12 noon of the Saturday next preceding the date when the degree is conferred.

THESIS.—The thesis must be typewritten upon standard paper, 8½ by 11 inches, medium weight, neatly bound in black cloth, and gilt-lettered on the first cover with title, name of author, degree sought, and year of graduation. The title page should bear the following statement: "A thesis submitted to the University of New Hampshire in partial fulfillment of the requirements for the professional degree of mechanical engineer (electrical engineer, civil engineer)."

Whenever a thesis is printed in any periodical, it must be designated as having been accepted as a professional engineering thesis by the University of New Hampshire.

Two bound copies must be filed before commencement day, one with the librarian and one with the head of the department in which the major work is done.

CURRICULA

The College of Technology offers the following four-year curricula:

ARCHITECTURE CURRICULUM.—This curriculum is planned to prepare the student for efficient service as a draftsman or designer in an architectural or industrial organization and to provide him with a broad cultural background as a foundation for future independent practice. The diversified demands upon the professional architect make it advisable for the student to extend his formal education and to acquire experience in the practical fields of building construction. To this end, the curriculum is made sufficiently flexible to afford opportunities for preparation in such allied fields as architectural and engineering drafting, building contracting, construction superintendence, real estate development, industrial design as related to building products, salesmanship of building materials and equipment, evaluation and appraisal work, advertising and art printing, teaching.

The first three years aim to provide fundamental instruction and discipline in the art, science, theory and history of architecture, supplemented with such basic courses of study in related departments of the university as to give a proper background for independent work in architectural design and construction.

The fourth year is devoted chiefly to thesis work in the design of a civic or residential development in harmony with New England traditions, followed by complete working drawings and specifications covering all branches of the work and supplemented with studies of office procedure including contract forms, accounting and bookkeeping. The aim is to prepare the student for immediate service in an architect's office or in some branch of the building construction industry.

CHEMISTRY AND CHEMICAL ENGINEERING CURRICULA. These curricula are intended to prepare the student for the career of a professional chemist or chemical engineer and to give a good foundation for further study in graduate schools leading to original and independent research.

Instruction is imparted by lectures, recitations and carefully supervised laboratory work. The laboratory study is largely individual, and the work of each student is conducted with reference not only to the particular subject he may have in view, but also to the acquirement of a broad knowledge of chemical science. The student is given a training in either German or French to enable him to read with ease the chemical literature, and a grounding in mathematics and physics necessary for advanced theoretical chemistry or chemical engineering. In the chemistry option further courses in pure science and an independent research project are offered, whereas the option in chemical engineering offers a limited amount of special work in mechanics, electrical engineering and thermodynamics and thorough courses in undergraduate chemical engineering subjects. The student in both options is encouraged to develop the power of solving chemical problems by independent thought through the aid of the reference library and chemical periodicals.

CIVIL ENGINEERING CURRICULUM.—This curriculum is designed to give the student theoretical and practical training in the principles upon which the practice of civil engineering is based, and to allow him the opportunity to apply these principles to problems of professional practice in the classroom, in the design room and in the field.

Civil engineering, the oldest of the engineering professions, still covers a broad field of activity, including topographical, structural, transportation, hydraulic, and sanitary engineering. This curriculum places about equal emphasis upon each of these various branches and allows the student some opportunity to develop his special interests through the thesis requirement.

ELECTRICAL ENGINEERING CURRICULUM.—The electrical engineering curriculum is intended to meet the demands of young men fitting themselves for professional engineering in connection with the various applications of electricity.

By means of lectures, recitations and laboratory work, the courses of the curriculum are brought to the attention of the student in such a manner as not only to emphasize the present needs of the practitioner and engineer, but to give him the principles needed to understand the constantly increasing number of new problems that require solution.

MECHANICAL ENGINEERING CURRICULUM.—The mechanical engineering curriculum is intended to train young men for positions of responsibility in the field of the mechanical industries, ~~and is designed to fit them socially for their proper places in the world.~~ The courses in the curriculum are scientific, including mathematics, physics and chemistry, and technical, including drawing, shop work, thermodynamics, hydraulics,

machine design, electrical engineering, power engineering. Two years of economics are available as alternates. Throughout the curriculum the theoretical work is supplemented by practice in mechanical operation and scientific research, by training in the use of tools for working wood and metals, and by experimental tests and demonstrations in the mechanical, electrical, chemical and physical laboratories.

Engineering Experiment Station.—The Engineering Experiment station was established for the purpose of making available the advisory assistance of heads of departments and experienced men in the faculty of the College of Technology, and the use of laboratory facilities of these departments for service and assistance of New Hampshire industries and the people of New Hampshire in solving their technical problems.

Alumni Representation.—An advisory committee of alumni of the College of Technology, composed of men in direct contact with industry and practical professional affairs, serves to keep the faulty in touch with developments in the several fields which attract our graduates. Members of this committee also serve as consultants when important changes in curricula, faculty personnel and policies of administration are considered. The members are:

Henry H. Calderwood, B.S. in E.E., '01, 20 Prospect Street, Saugus, Mass.

John T. Croghan, B.S. in M.E., '08, 574 Chestnut Street, Waban, Mass.

Robert A. Neal, B.S. in E.E., '10, 316 Burlington Road, Wilkinsburg, Pa.

Lester A. Pratt, Ph.D., '09, 7 Everett Avenue, Winchester, Mass.

COLLEGE OF TECHNOLOGY

ARCHITECTURE

Freshman Year

	First Semester Credits	*Second Semester Credits*
Convocation (*Required*)		
Freshman Assembly (*Required First Semester*)		
Phys. Ed. 31, 32	½	½
Mil. Sci. 9, 10	1½	1½
Math. 1, 2 (*Algebra and Trigonometry*)	4	4
*Eng. 1, 2 (*Elementary written and oral English*)	3	3
†Chem. 1 (*General Chemistry*)	4	
†M.E. 1 (*Engineering Drawing*)	2	
†M.E. S1 (*Elementary Shop Practice*)	3	
Arch. 2 (*Elements of Architecture*)		2
Arch. 4 (*The Significance of Architecture*)		2
Arch. 24 (*Shades and Shadows, Perspective*)		3
Arch. 26 (*Architectural Design*)		2
Arch. 38 (*Freehand Drawing*)		2
	18	20

Sophomore Year

Convocation (*Required*)		
Phys. Ed. 33, 34	½	½
Mil. Sci. 11, 12	1½	1½
Eng. 35 (*Public Speaking*)	3	
Phys. 3, 4 (*Physics*)	4	4
M.E. 12 (*Mechanics*)		4
Arch. 14 (*Domestic Architecture*)		2
Arch. 27, 28 (*Architectural Design*)	6	6
Arch. 39, 40 (*Freehand Drawing*)	2	2
	17	20

Junior Year

Convocation (*Required*)		
Elective	3	
M.E. 40 (*Heating and Ventilating*)		2
Arch. 5, 6 (*History of European Architecture*)	2	2
Arch. 9 (*Architectural Composition*)	2	
Arch. 14 (*Domestic Architecture*)		2
Arch. 19, 20 (*Building Construction*)	3	3
Arch. 29, 30 (*Architectural Design*)	6	6
Arch. 41, 42 (*Water Color and Modeling*)	3	3
	19	18

Senior Year

Elective	3	3
Eng. (41) (*Expository Writing*)		2
E.E. 31 (*Circuits and Appliances*)	4	
Phys. 54 (*Acoustics*)		3
Arch. 7 (*History of American Architecture*)	2	
Arch. 15 (*Professional Practice*)	2	
Arch. 16 (*Specifications and Appraising*)		2
Arch. 21 (*Architectural Seminar*)	1	
Arch. 31, 32 (*Architectural Design and Thesis*)	6	6
Arch. 44 (*Model Making*)		2
	18	18

* If English 1 and 2 are removed by test, other work in English will be substituted.

† A course approved by the department head may be substituted for M.E. 1, M.E. S1, Chem. 1.

UNIVERSITY OF NEW HAMPSHIRE

COLLEGE OF TECHNOLOGY

Recommended Electives

	First Semester Credits		*Second Semester Credits*
Arch. 37 (*Freehand Drawing*)	2		
C.E. 9 or (9) (*Plane Surveying*)	2	or	2
Econ. 1, 2 (*Principles of Economics*)	3		3
Eng. 3, 4 (*Survey of English Literature*)	3		3
Eng. 29, 30 (*Survey of Art*)	3		3
Geol. 7, (7) (*General Geology*)	3	or	3
Hist. 11 (*Ancient Orient*)	3		
Hist. 12 (*Greece*)			3
Hist. 13, 14 (*Roman*)	3		3
Hist. 15, 16 (*Medieval*)	3		3
Hist. 17, 18 (*Renaissance*)	3		3
Hist. 19, 20 (*Modern European*)	3		3
H. E. 11, 12 (*Pottery*)	3		3
Hort. 28 (*Elementary Landscape Gardening*)			3
Modern Language (*A year's work*)			
Music (*A year's work*)			
Phil. 81, 82 (*Historical Introduction to Philosophy*)	3		3
Govt. 3, 4 (*American Government*)	3		3
Soc. 1 (*Principles of Sociology*)	3		
Soc. 2 (*Social Psychology*)			3

TECHNOLOGY CURRICULUM IN CHEMISTRY AND CHEMICAL ENGINEERING

Freshman Year

	First Semester Credits	*Second Semester Credits*
Convocation (*Required*)		
Freshman Assembly (*Required First Semester*)		
Phys. Ed. 31, 32	½	½
Mil. Sci. 9, 10	1½	1½
*Eng. 1, 2 (*Elementary Written and Oral English*)	3	3
Math. 5, 6 (*First Year Mathematics*)	5	5
Chem. 1, 4 (*Inorganic Chemistry*)	4	6
M.E. 1 (*Engineering Drawing*)	2	
M.E. S1 (*Elementary Shop Practice*)	3	
Geol. (7) (*General Geology*)		3
	19	19

Sophomore Year

Convocation (*Required*)		
Phys. Ed. 33, 34	½	½
Mil. Sci. 11, 12	1½	1½
Chem. 21 (*Semi-micro Qualitative Analysis*)	4	
Chem. 22 (*Quantitative Analysis*)		5
Math. 7, 8 (*Calculus*)	3	3
Phys. 7, 8 (*General Physics*)	4	4
Phys. 9, 10 (*Physics Laboratory*)	3	3
Ger. 1, 2 or 5, 6 (*German*) *or approved elective*	3	3
	19	20

Junior Year

Chemistry Option

Convocation (*Required*)		
Chem. 47, 48 (*Organic*)	5	5
Chem. 31 (*Stoichiometry and Tech. Quantitative Analysis*)	5	
Chem. 32 (*Advanced Quantitative Analysis*)		5
Chem. 83, 84 (*Physical Chemistry*)	5	5
Approved Elective	3	3
	18	18

Chemical Engineering Option

Convocation (*Required*)		
Chem. 47, 48 (*Organic Chemistry*)	5	5
Chem. 31 (*Stoichiometry and Technical Quantitative Analysis*)	5	
Chem. 71, 72 (*Unit Processes*)	2	2
Chem. 74 (*Unit Operations*)		3
Chem. 83, 84 (*Physical Chemistry*)	5	5
M.E. 9, 10 (*Mechanics*) *or Approved Elective*	3	3
	20	18

* If English 1 and 2 are removed by test, other work in English will be substituted.

Senior Year

Chemistry Option

	First Semester Credits	*Second Semester Credits*
Chem. 55, 56 (*Organic Chemistry*)	3	3
Chem. 71, 72 (*Unit Processes*)	2	2
Chem. 85, 86 (*Physical Chemistry*)	2	2
Chem. 87, 88 (*Thesis, Bibliography and Seminar*)	6	6
Phys. 52 (*Electrical Measurements*)	3	
Elective	3	3
	19	16

Chemical Engineering Option

Chem. 75 (*Unit Operations*)	3	
Chem. 76 (*Chemical Engineering Economy*)		3
Chem. 77 (*Unit Operations Laboratory*)	3	
Chem. 78 (*Chemical Plant Design*)		3
Chem. 80 (*Chemical Engineering Project*)		5
E.E. 33 (*Fundamentals of Electricity*)	4	
M.E. 23, 24 (*Thermodynamics*)	3	3
Chem. 87, 88 (*Bibliography and Seminar*)	1	1
Elective	3	3
	17	18

COLLEGE OF TECHNOLOGY

CIVIL ENGINEERING

Freshman Year

	First Semester Credits	Second Semester Credits
Convocation (*Required*)		
Freshman Assembly (*Required First Semester*)		
Phys. Ed. 31, 32	½	½
Mil. Sci. 9, 10	1½	1½
Math. 5, 6 (*First Year Mathematics*)	5	5
Chem. 1, 2 (*General Chemistry*)	4	4
*Eng. 1, 2 (*Elementary Written and Oral English*)	3	3
M.E. 1, 2 (*Engineering Drawing*)	2	2
M.E. S1 (*Elementary Shop Practice*)	3	
C.E. 2 (*Surveying*)		3
	19	19

Sophomore Year

Convocation (*Required*)		
Phys. Ed. 33, 34	½	½
Mil. Sci. 11, 12	1½	1½
C.E. 3, 4 (*Surveying*)	3	3
C.E. 6 (*Surveying*)		3
Math. 7, 8 (*Calculus*)	3	3
Phys. 7, 8 (*General Physics*)	4	4
Phys. 9, 10 (*Physics Laboratory*)	3	3
Geol. 7 (*General Geology*)	3	
	18	18

Junior Year

Convocation (*Required*)		
C.E. 11 (*Location Mapping and Earthwork*)	2	
C.E. 15 (*Engineering Materials*)	2	
C.E. 22 (*Hydraulics*)		4
C.E. 27, 28 (*Theory of Structures*)	4	4
C.E. 41, 42 (*A.S.C.E.*) (*Required*)		
M.E. 9, 10 (*Mechanics*)	3	4
M.E. 21 (*Heat Power Engineering*)	3	
E.E. 36 (*Practical Electricity*)		4
Mil. Sci. 13, 14 (*Coast Artillery*) or *approved elective*	3	3
	17	19

Senior Year

C.E. 31 (*Highway Engineering and Transportation*)	4	
C.E. 32 (*Transportation Engineering*)		3
C.E. 33, 34 (*Hydraulic and Sanitary Engineering*)	4	4
C.E. 35 (*Structural Design*)	4	
C.E. 36 (*Reinforced Concrete Structures*)		4
C.E. 38 (*Thesis*)		2
C.E. 43, 44 (*A.S.C.E.*) (*Required*)		
Eng. 41 (*Expository Writing*)	2	
Mil. Sci. 15, 16 (*Coast Artillery*) or *approved elective*	3	3
M.E. 45 (*Contracts and Specifications*)	3	
M.E. 46 (*Engineering Economy*)		3
	20	19

* If English 1 and 2 are removed by test, other work in English will be substituted.

UNIVERSITY OF NEW HAMPSHIRE

ELECTRICAL AND MECHANICAL ENGINEERING

Freshman Year

	First Semester Credits	*Second Semester Credits*
Convocation (*Required*)		
Freshman Assembly (*Required First Semester*)		
Phys. Ed. 31, 32	½	½
Mil. Sci. 9, 10	1½	1½
Math. 5, 6 (*First Year Mathematics*)	5	5
Chem. 1, 2 (*General Chemistry*)	4	4
*Eng. 1, 2 (*Elementary Written and Oral English*)	3	3
M.E. 1, 2 (*Engineering Drawing*)	2	2
M.E. S1, S2 (*Elementary Shop Practice*)	3	3
	19	19

* If English 1 and 2 are removed by test, other work in English will be substituted.

COLLEGE OF TECHNOLOGY

ELECTRICAL ENGINEERING

Sophomore Year

	First Semester Credits	Second Semester Credits
Convocation (*Required*)		
Phys. Ed. 33, 34	½	½
Mil. Sci. 11, 12	1½	1½
Math. 7, 8 (*Calculus*)	3	3
Phys. 7, 8 (*General Physics*)	4	4
Phys. 9, 10 (*General Physics Laboratory*)	3	3
E.E. 1, 2 (*Electrical Engineering*)	2	2
M.E. 3 (*Machine Drawing*)	2	
M.E. 4 (*Kinematics*)		3
M.E. (S17) (*Machine Shop*)		2
C.E. 9 (*Surveying*)	2	
	18	19

Junior Year

Convocation (*Required*)		
E.E. 3, 4 (*Electrical Engineering*)	3	3
E.E. 13, 14 (*Electrical Problems*)	2	2
E.E. 15, 16 (*A.I.E.E.*) (*Required*)		
E.E. 23, 24 (*Electrical Laboratory*)	2	2
M.E. 9, 10 (*Mechanics*)	3	4
M.E. 25, 26 (*Heat Power Engineering*)	3	4
M.E. 27 (*Mechanical Laboratory*)	2	
Math. 51, 52 (*Differential Equations and Vector Analysis*) or Mil. Sci. 13, 14 (*Coast Artillery*) *or approved elective*	3	3
	18	18

Senior Year

E.E. 5 (*Electrical Engineering*)	3	
*E.E. 7, 8 (*Electronics and Communications*)	3	5
*E.E. 10 (*Advanced Circuit Theory*)		4
E.E. 12 (*Illumination*)		2
E.E. 17, 18 (*A.I.E.E.*) (*Required*)		
*E.E. 19, 20 (*Thesis*)	3	3
*E.E. 25, 26 (*Electrical Laboratory*)	4	4
*E.E. 28 (*Advanced Electronics Laboratory*)		4
Phys. 51 (*Theory of Electrons*)	2	
Phys. 52 (*Electrical Measurements*)		3
C.E. 23 (*Hydraulics*)	2	
Eng. (41) (*Expository Writing*)		2
M.E. 45 (*Contracts and Specifications*)	3	
M.E. 46 (*Engineering Economy*)		3
Mil. Sci. 15, 16 (*Coast Artillery*)	3	3
Approved non-technical elective (*optional*)		3
	20	18

* E.E. 8, 10, 19, 20, 26 and 28 are elective courses.

MECHANICAL ENGINEERING

Sophomore Year

	First Semester Credits	*Second Semester Credits*
Convocation (*Required*)	½	½
Phys. Ed. 33, 34	1½	1½
Mil. Sci. 11, 12	3	3
Math. 7, 8 (*Calculus*)	4	4
Phys. 7, 8 (*General Physics*)	3	3
Phys. 9, 10 (*General Physics Laboratory*)	2	
M.E. 3 (*Machine Drawing*)		3
M.E. 4 (*Kinematics*)	1	1
M.E. 5, 6 (*Mechanical Laboratory*)	2	
M.E. S17 (*Machine Shop*)		2
C.E. (9) (*Surveying*)	17	18

Junior Year

Convocation (*Required*)		
A.S.M.E. 1, 2 (*Required*)		
E.E. 37, 38 (*Electrical Machinery*)	4	4
M.E. 7, 8 (*Mechanics*)	4	4
M.E. 23, 24 (*Thermodynamics*)	3	3
M.E. 29, 30 (*Mechanical Laboratory*)	2	1
M.E. 39 (*Heating and Ventilating*)	2	
C.E. 24 (*Hydraulics*)		3
Mil. Sci. 13, 14 (*Coast Artillery*) *or approved elective*	3	3
	18	18

Senior Year

A.S.M.E. 3, 4 (*Required*)	3	
M.E. 13 (*Manufacture of Iron and Steel*)	3	3
M.E. 15, 16 (*Machine Design*)		2
M.E. 32 (*Mechanical Laboratory*)	2	2
M.E. 33, 34 (*Power Plants*)	3	3
M.E. 35, 36 or 37, 38 (*Automotive Engineering or Aeronautics*)	3	
M.E. 45 (*Contracts and Specifications*)		3
M.E. 46 (*Engineering Economy*)	2	
M.E. 49 (*Thesis*)		2
Eng. (41) (*Expository Writing*)	3	3
Mil. Sci. 15, 16 (*Coast Artillery*) *or approved elective*	19	18

COLLEGE OF TECHNOLOGY

SUMMER SCHOOL

The University of New Hampshire Summer school (the nineteenth session of which will be held from July 1 to August 9, 1940) offers courses in most departments of all three colleges. The Summer school is designed to meet the needs of:

Teachers, administrators and supervisors of secondary schools.

Advanced teachers, administrators and supervisors of elementary schools.

Advanced students seeking special professional preparation for teaching, administrative or supervisory positions.

Normal school graduates who desire to complete the requirements for a University degree.

Graduate students who may earn the degree of master of arts, master of science or master of education through work done in part or exclusively during summer sessions.

Undergraduates in the university and in other colleges who desire to utilize the vacation period for the purpose of anticipating courses or supplying deficiencies.

Candidates for admission to any of the colleges of the University who desire to obtain advanced standing or to complete some special requirement for admission.

Qualified persons of adequate maturity and preparation who are not engaged in formal study or teaching but who desire to attend courses for general cultural purposes.

For Summer school bulletin, information as to particular courses, etc., address the Registrar, University of New Hampshire, Durham, N. H.

EXTENSION COURSES FOR UNIVERSITY CREDIT

In response to the insistent demand of the people of the state the trustees of the university have approved offering extension courses for university credit. Professors are sent out to centers within the state where there is a demand for classes to be formed. At present the courses offered will depend on the teaching schedules of the various departments.

DESCRIPTION OF COURSES

(Alphabetically Arranged)

The title of the course is given in capital letters and small capital letters. The numeral designates the particular course. Odd numerals indicate courses offered in the first semester. Even numerals indicate courses offered in the second semester. Numerals enclosed in parentheses indicate that a course is repeated in the semester following. Thus, course 1 (1) is offered in the first semester and is repeated in the second semester.

Courses numbered 1–50 are open to undergraduates only. Courses numbered 51–100 are open to undergraduates and graduate students. Courses numbered 101–200 are for graduate students only. Courses numbered above 200 are open only to students in the two-year curriculum in agriculture.

Following the title of each course is the description of the work given and the name of the instructor.

The next paragraph gives the following information in the order indicated: (1) prerequisites, if any; (2) the curricula in which the course is required and the undergraduate year in which it should be taken; (3) the number of hours of recitations or laboratory periods required each week; (4) the number of semester credits the course will count in the total required for graduation. Lectures and recitations are fifty minutes in length. Laboratory periods are two and one-half hours in length.

Abbreviations have been employed to indicate the number of hours of work required of students in lecture, recitation and laboratory and the number of credits given for satisfactory completion of each course. These abbreviations should be interpreted as follows:

Cr.	Credit
Lab.	Laboratory
Lec.	Lecture
Prereq.	Prerequisite
Rec.	Recitation

All courses (unless otherwise marked) are open to students who have passed the prerequisites.

An elective course will be given only when there is a minimum of five students registered therefor.

ACCOUNTING

(See Economics)

AGRICULTURAL AND BIOLOGICAL CHEMISTRY

THOMAS G. PHILLIPS, *Professor;* STANLEY R. SHIMER, *Assistant Professor;* ELWOOD C. PIERCE, *Graduate Assistant;* WILLARD S. BREON, *Graduate Assistant;* ARTHUR E. TEERI, *Graduate Assistant.*

1. AGRICULTURAL CHEMISTRY. An introduction to organic chemistry and a brief survey of biological chemistry. Mr. Shimer, Mr. Phillips.

Prereq.: Chemistry 2. Required of sophomores in agriculture. 3 lec.; 2 lab.; 5 cr.

2. AGRICULTURAL CHEMISTRY. The chemistry of plant growth, soils and fertilizers. Mr. Phillips.

Prereq.: Agricultural chemistry 1 or its equivalent. Elective. 2 lec.; 1 lab.; 3 cr.

4. AGRICULTURAL CHEMISTRY. The chemistry of animal nutrition. Mr. Shimer.

Prereq.: Agricultural chemistry 1 or its equivalent. Elective. 2 lec.; 1 lab.; 3 cr.

5. ORGANIC AND BIOLOGICAL CHEMISTRY. An introduction to organic chemistry and a brief survey of biological chemistry. Mr. Shimer.

Prereq.: Chemistry 2. Required of juniors in home economics. 3 lec.; 2 lab.; 5 cr.

6. CHEMISTRY OF FOOD AND NUTRITION. The chemistry of food materials and of digestion, absorption, metabolism and excretion. Mr. Shimer.

Prereq.: Agricultural chemistry 5 or its equivalent. Elective for home economics students. 2 lec.; 1 lab.; 3 cr.

51, 52. PHYSIOLOGICAL CHEMISTRY. The chemistry of fats, carbohydrates and proteins, colloids, enzyme action, digestion, metabolism and excretion. The qualitative and quantitative examination of blood and urine. Mr. Shimer.

Prereq.: Satisfactory preparation in organic chemistry and quantitative analysis. 3 lec.; 2 lab.; 5 cr.

53, 54. AGRICULTURAL ANALYSIS. A study of the methods of analysis of soils, fertilizers, feeding stuffs, and other products important in agriculture. Mr. Phillips, Mr. Shimer.

Prereq.: Satisfactory preparation in organic chemistry and quantitative analysis. 1 lec.; 3 lab.; 4 cr.

55. PLANT CHEMISTRY. A study of the chemistry of plant growth and of methods for the analysis of plant materials. Mr. Phillips.

Prereq.: Agricultural chemistry 2. 2 lec.; 2 lab.; 4 cr.

For courses primarily for graduate students, see catalog of the Graduate school.

AGRICULTURAL ECONOMICS

HARRY C. WOODWORTH, *Professor;* HAROLD C. GRINNELL, *Assistant Professor;* PERLEY F. AYER, *Instructor.*

1. AGRICULTURAL ECONOMICS. Problems growing out of the economic characteristics of agriculture. Production and distribution problems, the nature of farming costs, agricultural prices, farm credit, agricultural policy in the light of economic principles and research results. Mr. Woodworth.

Required of juniors in certain curricula. 3 rec.; 3 cr.

3. FARM ACCOUNTING. Accounting methods as applied to the farm business; inventory and credit statement, farm records, double entry proprietorship accounts, federal income tax returns and single enterprise cost accounts. Mr. Grinnell.

Required of juniors in animal husbandry, general agriculture and teacher training. 1 lab.; 2 cr.

4. FARM MANAGEMENT. The organization of the farm business from the point of view of efficiency and greatest continuous profit. Types of farming, factors affecting financial success, measures of financial success, cropping systems, livestock problems, labor problems, etc. Practical problems in analyzing typical farm businesses and in the reorganization of at least one near-by farm. Mr. Grinnell.

Required of seniors in agriculture, except those registered in agricultural chemistry, botany, entomology, forestry and poultry. 2 lec.; 1 lab.; 3 cr.

5. COÖPERATIVE MARKETING. The essential characteristics of cooperative development in this country, something of its present importance, and the principles underlying sound organization. Types of coöperatives, legal phases and problems in corporation finance are emphasized. Mr. Grinnell.

Required of seniors in agriculture, except those registered in agricultural chemistry, botany, entomology, forestry, and poultry. Elective for other students. 2 lec.; 2 cr.

8. THE RURAL COMMUNITY. A consideration of farming as a mode of life and the rural community as a place to live; the attitudes, problems and satisfactions of rural people; social institutions and human relationship organizations, with special emphasis on extension work, its philosophy, methods, and place in the development of education for all. Laboratory demonstrations will be provided with the coöperation of the state extension staff. Mr. Ayer.

Required of home economics extension and agricultural teacher preparation seniors. Elective for other agricultural seniors. 2 lec.; 1 lab.; 3 cr.

51, 52. SPECIAL AGRICULTURAL ECONOMICS. Graduate or undergraduate credit to satisfy a student's needs may be obtained in this

course in special cases by permission of the head of the department. Mr. Woodworth, Mr. Grinnell.

Hours of meeting and number of credits to be arranged.

AGRONOMY AND AGRICULTURAL ENGINEERING

FORD S. PRINCE, *Professor;* LEROY J. HIGGINS, *Assistant Professor;* WALTER T. ACKERMAN, *Assistant Professor;* GEORGE M. FOULKROD, *Assistant Professor.*

AGRONOMY

The department of agronomy, located on the first floor and basement of Morrill hall, is suitably equipped to give instruction in soils, crops and fertilizers. The lecture room is provided with tables and magnifiers for the study of field crops and for fertilizer identification. Most of the common varieties and strains of field and forage crops are annually produced and samples retained for student use. The soils laboratory is equipped with modern apparatus peculiar to the requirements of soils study and the weighing equipment has been recently modernized with chain-o-matic balances.

Students have an opportunity to study plot work with forage crops and lawns near the dairy barn with fertility work in the greenhouse, while soil types and profiles near the university are utilized as a part of the agronomic study.

1. SOILS. The nature and properties of soils, with special consideration of the fundamental physical, chemical and biological processes and characteristics of productive soils. An introductory course for all students in the College of Agriculture and fundamental for those who continue in agronomy work. Laboratory work will supplement some of the more important principles considered in lectures. Mr. Higgins.

Required of juniors in agriculture, with a few exceptions. 2 lec.; 1 lab.; 3 cr.

2. FERTILIZERS. The occurrence and function of plant food materials in soils and the use of manure and fertilizers in crop production. Special attention to the production, care and preservation of manure, to the compounding of fertilizers, and the response of different types of crops. Mr. Prince.

Prereq.: Agricultural chemistry 1. Required of juniors in agriculture, with a few exceptions. 2 lec.; 2 cr.

3, 4. CROP PRODUCTION. An introduction to the general study, considering distribution, choice, growth processes, cropping practices, preparation of seed beds, care, improvement and breeding; also a detailed study of root crops and potatoes. Second semester continues in more detail concerning forage, cereals, and other crops grown in New England. Laboratory work in identification and judging. Hayland and pasture management will be emphasized. Mr. Higgins.

Prereq.: Agronomy 3. Required of juniors in agriculture, with a few exceptions. 2 lec.; 1 lab.; 3 cr.

5. Soil Utilization. Classification, utilization and management of soils, particularly those of New Hampshire. Available literature will be cited. Laboratory will consist of practical soil management and utilization problems, field trips and mapping. Mr. Higgins.

Prereq.: Agronomy 1. Elective for seniors. 1 lec.; 1 lab.; 2 cr.

6. Seed Testing. Official method of analysis of agricultural seeds for purity and germination, the identification of seeds, and the technique of using equipment in weighing, germinating, counting, estimating, etc., for official reports. Mr. Higgins.

Prereq.: Botany 2 and agronomy 4. Elective for a very limited number of seniors. Hours arranged. 1 lab.; 1 cr.

51, 52. Advanced Soils. Under direction the student may choose special phases such as soil fertility, soil classification and mapping, soil conservation or utilization. Practice in looking up literature and in preparation of reports and abstracts. Facilities will be available for special laboratory and field work in connection with specific problems.

Prereq.: Agronomy 1, 2, 3, 4. Elective for seniors and graduate students. Number of credits to be arranged.

53, 54. Advanced Field Crops. Handled similarly to agronomy 51 and 52, with attention to distinct phases of field crops work such as plant breeding in relation to crop improvement, pasture management, crop production and marketing, grading and judging. Training in searching the literature and preparing reports. Laboratory and field work provided.

Prereq.: Agronomy 1, 2, 3, 4. Elective for seniors and graduate students. Number of credits to be arranged.

Agricultural Engineering

The laboratories and class rooms for agricultural engineering are on the first and second floors of Pettee hall. Here are provided facilities for the study of farm power, equipment, building construction and maintenance, drawing and surveying and other engineering problems related to farm enterprises. Drainage levels for laying out drains, plane tables for mapping plots of land, polar planimeters for measuring plotted areas, steel tapes, chains, range poles, etc., are available for practical work in farm surveying, mapping and drainage problems.

1. Basic Agricultural Engineering Applications. Farm mechanics; farm mapping; farm water supply and sanitation; farm machinery and power applications; farm drawing and sketching; and types and purposes of farm buildings are covered in theory and demonstration. Mr. Foulkrod.

Elective for all agricultural freshmen and sophomores. 2 lec.; 1 lab.; 3 cr.

2. Farm Power and Machinery. The farm tractor and its special tools. A review of the development of farm machines, especially those of economic importance in this section. Care, repair and adjustment will be carefully considered in the laboratory, supplemented by operation under actual field conditions. Four to six makes of modern tractors, several gas engines, light plants and a large variety of field machines are available. Mr. Foulkrod.

Prereq.: Agricultural engineering 1. Recommended for seniors in general agriculture, animal husbandry, dairy husbandry, and poultry husbandry. Elective for all other agricultural juniors and seniors. 1 lec.; 1 lab.; 2 cr.

3. Electric Farm Power. The comparative utility of individual plant and central station current; rural line extension procedure; proper wiring for farm applications with particular emphasis on household, farmstead, dairying, poultry farm and horticultural uses. The economics of various methods, cost of operation, care and maintenance of equipment, quality of results obtainable and effect on the farm labor problem. Mr. Ackerman.

Recommended for seniors in animal husbandry, dairy husbandry and horticulture, and juniors in poultry husbandry. Elective for all other agricultural juniors and seniors. 2 rec.; 1 lab.; 3 cr.

4. Agricultural Drawing. Designed to meet the needs of all agricultural students. The elementary principles of drawing and lettering, the application of these principles to the making of charts, graphs, maps, machines and shop sketches, as well as to plans for minor farm buildings. Mr. Foulkrod.

Recommended for all sophomores in agriculture. 1 lab.; 1cr.

5. Farm Buildings and Equipment. Lectures on types and purposes of farm shelters, materials, equipment and sanitary requirements. Drafting room work in design and laboratory work in construction, with special attention to remodeling existing buildings. Mr. Foulkrod.

Prereq.: Agricultural engineering 4. Elective for all juniors and seniors in agriculture. 1 lec.; 1 lab.; 2 cr.

6. Farm Mechanics Shop. Planned to give seniors in teacher preparation practice in farm mechanics; to develop skill with tools, and general knowledge of farm mechanics applications. A modern farm shop is employed. Mr. Foulkrod.

Required of agricultural teacher preparation seniors. 2 lab.; 2 cr.

ANIMAL HUSBANDRY

Loring V. Tirrell, *Professor;* Carl L. Martin, *Assistant Professor.*

1. Types and Breeds of Livestock. Origin, history, development, characteristics, and adaptability of the different breeds of horses, cattle,

sheep and swine to different conditions of climate and soil. One afternoon each week devoted to judging. Mr. Tirrell.

Recommended for freshmen in agriculture. 2 lec.; 1 lab.; 3 cr.

2. Livestock Judging. The principles and practice of judging horses, beef cattle, sheep and swine, and of market classes and grades. The university judging teams for such expositions as the Eastern States at Springfield and the International at Chicago are selected from students taking courses 2 and 4. Trips are taken to some of the best breeding establishments in New England. Mr. Tirrell.

Prereq.: Animal husbandry 1. Required of sophomores electing animal husbandry. 1 lab.; 1 cr.

3. Feeds and Feeding. The character, composition and digestibility of feedstuffs, and the methods of feeding different kinds of farm animals. Numerous samples of grains and by-products are used. Practice in calculating rations. Mr. Tirrell.

Required of seniors in animal husbandry, dairy husbandry, general and teacher preparation curricula. 3 lec.; 3 cr.

4. Advanced Livestock Judging. A continuation of 2 and open to students who have previously taken 2. Mr. Tirrell.

1 lab.; 1 cr.

5, 6. Veterinary Science. Systematic anatomy of the different farm animals, animal physiology, and the prevention of animal diseases. In the second semester, the more common diseases of farm animals, their prevention and control. Mr. Martin.

Required of juniors in animal husbandry. Elective for others. 3 lec.; 3 cr.

8. Meat and Its Products; Livestock Markets. A study of meat, farm slaughter, curing and identification of cuts; livestock markets, stockyards and transportation. Occasional trips will be taken to slaughter houses and packing plants. Mr. Tirrell.

Required of seniors in animal husbandry. Elective for others. 2 lec.; 2 cr.

9. Management of Horses and Beef Cattle. Lectures and recitations upon the care of brood mares and cows, management of stallions and bulls, the breaking and training of colts, preparation of animals for the show ring, the management of pure-bred beef herds, and the feeding and handling of steers. Mr. Tirrell.

Required of seniors in animal husbandry. Elective for others. 2 lec.; 1 lab.; 3 cr.

10. Sheep and Swine Husbandry. The judging, breeding, feeding, management and preparation for the show ring of sheep and swine, with special reference to New Hampshire conditions. Mr. Tirrell.

Required of seniors in animal husbandry. Elective for others. 2 lec.; 1 lab.; 3 cr.

51. Animal Breeding. The principles and practices of breeding farm animals, including cross-breeding, in-breeding, selection, inheritance, breed analysis, reproductive efficiency, fertility, sterility, Mendelism in relation to farm animals, acquired characters and variation. Practice is given in tracing and studying pedigrees. Mr. Tirrell.

Required of seniors in animal husbandry. 2 lec.; 1 lab.; 3 cr.

52. Animal Husbandry Seminar. Library and reference work and the preparation of papers on various animal husbandry subjects of timely importance. Mr. Tirrell.

Prereq.: Animal husbandry 3 and 51. Required of seniors in animal husbandry. Elective for others. Hours and credits to be arranged.

ARCHITECTURE

Eric T. Huddleston, *Professor;* Arnold Perreton, *Assistant Professor;* George R. Thomas, *Assistant Professor.*

The department of architecture is well equipped to meet the needs of the courses offered. The drafting rooms are supplied with tables and lockers, and the free-hand studio with suitable stands and easels and geometric models. For advanced work in charcoal drawing the nucleus of a good collection of plaster casts exists, consisting of historic ornament, details of plant and animal life and of the human form as well as the museum of casts, consisting of examples of antique and modern sculpture. For work in architectural drawing an excellent library of books, periodicals, and blue prints of all classes of buildings are available for reference and use in the drafting rooms, while a goodly collection of samples of building materials is being added from time to time.

The courses marked "Elective by permission" are open to all students in the university. (See also Fine Arts section of this catalog.) Other courses, not so marked, may be elected only when sufficient evidence of student interest and purpose is demonstrated to the satisfaction of the department.

2. Elements of Architecture. The fundamentals of architectural appreciation and expression. Illustrated lectures on the basic modern building materials, the construction and design fundamentals of architectural elements such as walls, columns, floors, ceilings, roofs, doors, windows, ornament, etc., and their respective terminology. Also, by means of the students' required collection of architectural illustrations, is shown the varied application of the elements and their fundamental relation to contemporary architectural usage. Mr. Perreton.

Elective by permission. Required of freshmen in architecture. 2 rec.; 2 cr.

3. The Significance of Architecture. Non-technical, requiring no previous architectural experience. A comprehensive view of the

architectural profession, its allied arts, and the building construction industry to the end that the student's interest in further study in these fields may be better directed. Mr. Huddleston.

Elective by permission. Required of freshmen in architecture. 2 rec.; 2 cr.

5, 6. History of European Architecture. Illustrated lectures with assigned reading and sketches on the historical development of the successive periods, with an analysis of the environment, the style evolved, and the chief contributions of each period to architectural expression. Mr. Perreton.

Elective by permission. Required of juniors in architecture. 2 rec.; 2 cr.

7. History of American Architecture. Illustrated lectures with assigned reading and sketches on the historical development of the successive periods. The social conditions, the type of architecture, the work of the outstanding architects in the various geographical sections, and the chief contribution of each period to architectural expression. Mr. Perreton.

Elective by permission. Required of seniors in architecture. 2 rec.; 2 cr.

9. Architectural Composition. The principles governing composition and methods of applying them to present-day architecture. Aims to develop a basis for the appreciation and expression of the function, beauty, and character in the various types of building. Mr. Perreton.

Elective by permission. Required of juniors in architecture. 2 rec.; 2 cr.

14. Domestic Architecture. A brief history of domestic architecture with special emphasis on early American housing as a basis for an appreciation of the New England colonial architecture. Modern housing problems, including the relation of the house plan to family requirements, to the individual site, to the garden, to accessory buildings, and to the community, with special consideration of economy in design and material, as it affects initial building and maintenance costs, and of the need for intelligent coöperation on the part of the prospective owner with the architect and builder. Mr. Huddleston.

Elective by permission. Required of sophomores and juniors in architecture. 2 rec.; 2 cr.

15. Professional Practice. The personal, ethical, business and legal relations of the architect with clients, contractors, craftsmen, etc., and the relations that should exist between the architect and the community in which he lives. Procedure in the conduct of an architect's office, i.e., contract forms, bookkeeping, and accounting as they apply to professional work. Mr. Huddleston.

Required of seniors in architecture. 2 rec.; 2 cr.

16. Specifications and Appraising. The fundamentals of specification writing and the preparation of an outline specification adapted to the requirements of the thesis problem designed by each student. Methods of estimating and appraising buildings, both before and after construction. Mr. Huddleston.

Required of seniors in architecture. 2 rec.; 2 cr.

19, 20. Building Construction. The principles of structural design and an analysis of structural systems as applied to wood frame house, light and heavy timber, steel and reinforced concrete construction. Emphasis is on the selection of structural systems in the solution of various types of construction problems; also the practical methods used in applying the various materials of construction as they occur in modern practice, and the introduction of plumbing, heating, ventilating, and electrical equipment. Mr. Huddleston.

Prereq.: Architecture 28 and Mechanical engineering 12.
Required of juniors in architecture. 3 lab.; 3 cr.

21. Architectural Seminar. Library research and the preparation of papers on approved subjects related to the thesis problems. Each student is required to lead the discussion on his subject. Mr. Huddleston.

Required of seniors in architecture. 1 rec.; 1 cr.

24. Shades, Shadows and Perspective. Determination of conventional shades and shadows in Architectural drawings; architectural application of descriptive geometry; theory of perspective and practical construction of perspective drawings. Rendering in wash of problems illustrating light, shade, and shadow. Mr. Thomas.

Elective by permission. Required of freshmen in architecture. 1 lec.; 2 lab.; 3 cr.

26. Architectural Design. Drafting room exercises paralleling the lectures on elements of architecture (Architecture 2). The accepted methods of architectural drafting. Measured drawings showing the relation of material, construction and design, drawn from field sketches and photographs of existing elements. Design studies of single and combined elements serving specific functions. Mr. Perreton.

Architecture 2 must be taken either in parallel or as a prerequisite. Elective by permission. Required of freshmen in architecture. 2 lab.; 2 cr.

27, 28. Architectural Design. A progressive series of competitive problems in the composition of architectural elements in interior and exterior design, with special emphasis given to the correct use of the modern materials and structural forms of design. Mr. Thomas.

Prereq.: Architecture 24 and 26. Elective by permission.
Required of sophomores in architecture. 6 lab.; 6 cr.

29, 30. Architectural Design. A progressive series of competitive problems in the application of the principles of composition to the design of contemporary buildings. Special emphasis on the correlated expression of the functional planning and aesthetic composition in the design of residential, recreational, commercial and municipal buildings of contemporary town and small city scale. Mr. Perreton.

Prereq.: Architecture 28. Required of juniors in architecture. 6 lab.; 6 cr.

31, 32. Architectural Design and Thesis. The design of the first semester includes a civic or residential development from which a residence and public building will be selected and designed in harmony with the immediate environment. The thesis in the second semester includes a practical course of building design to familiarize the student with the fundamental process of working drawing development in the architect's office. A residence or small public building will be designed to conform to the specified requirements of hypothetical clients. This is followed with working drawings and details, including structural and equipment drawings. Mr. Perreton and Mr. Huddleston.

Prereq.: Architecture 30. Required of seniors in architecture. 6 lab.; 6 cr.

33, 34. Architectural Design. An approved program proposed by the student will be used for advanced study. Mr. Perreton.

Prereq.: Architecture 30. Elective by permission only. Credits to be arranged.

37. Freehand Drawing. Studio exercises in graphical representations designed to stimulate and develop the student's expression of creative thoughts. Original ideas will be guided through the process of development by criticism and suggestions only, the student being given perfect freedom for self-expression. Mr. Thomas.

Elective by permission. 2 lab.; 2 cr.

38. Freehand Drawing. Elementary drawing in various media from casts, still-life and nature, aiming at the stimulation and development of creative thought through the study of fundamental forms. Students desiring a foundation in elementary anatomical illustration will be given problems suited to their specific field of work. Mr. Thomas.

Elective by permission. Required of freshmen in architecture. 2 lab.; 2 cr.

39, 40. Freehand Drawing. Advanced studio exercises in various media from casts and from life, with attention to composition, accurate reproduction of proportions, the principles of freehand perspective, and the expression of mass by means of line and simple light and shade. Weather permitting, sketching from nature will supplement the work in the studio. Mr. Thomas.

Prereq.: Architecture 37 or 38. Elective by permission. Required of sophomores in architecture. 2 lab.; 2 cr.

41, 42. Water Color and Modeling. Exercises in the handling of wash; studies in water color from documents, photographs and still-life; supplemented with lectures presenting the theories of color, scientific and aesthetic, and their application. Outdoor sketching, if weather permits. Simple creative exercises in modeling clay, followed by original designs from programs. Mr. Thomas.

Elective by permission. Required of juniors in architecture. 1 lec.; 2 lab.; 3 cr.

44. Model Making. To create further appreciation of three-dimensional design, a complete model of the senior thesis problem will be constructed. The model will be executed in the scale and manner of the type often presented by the architect to the prospective client in assisting him to interpret the various plans and elevations. Instruction in the construction of various types of architectural or scientific models. Mr. Thomas.

Elective by permission. Required of seniors in architecture. 2 lab.; 2 cr.

45, 46. Advanced Freehand Drawing. A general advanced study of special types, depending upon the student's previous training. A variety of studio work under individual supervision and criticism. Mr. Thomas.

Special permission must be obtained from the head of the department before registering in this course. Hours and credits to be arranged.

BOTANY AND BACTERIOLOGY

Ormond R. Butler, *Professor;* Marian E. Mills, *Assistant Professor;* Stuart Dunn, *Assistant Professor;* Lawrence W. Slanetz, *Assistant Professor;* Albion R. Hodgdon, *Instructor;* Kenneth S. Anderson, *Graduate Assistant.*

Botany

1, 2. General Botany. The seed-bearing plants with emphasis on the structure and functions of organs. A general survey of the plant kingdom with emphasis upon development, reproduction and relationships. Evolution and heredity in plants. Miss Mills, Mr. Hodgdon.

Prereq.: 1 prerequisite for 2. Required of freshmen in agriculture. Elective for others. 2 lec.; 2 lab.; 4 cr.

3. Plant Histology. Characterization and differentiation of plant tissues; micro-technique. Mr. Dunn.

Prereq.: Botany 2. Required of juniors in botany and certain forestry students. 2 lab.; 2 cr.

4. Plant Physiology. Structure and properties of the cell; absorption and movement of water; metabolism; growth and irritability. Mr. Dunn.

Prereq.: Botany 2 and one year of chemistry. Required of juniors in botany and forestry, and of seniors in horticulture. Elective for others. 2 lec.; 2 lab.; 4 cr.

5. Plant Pathology. The bacterial and fungous diseases of plants, their symptoms, cause and prevention. Mr. Dunn.

Prereq.: Botany 2. Required of juniors or seniors in botany and horticulture. Elective for others. 1 lec.; 2 lab.; 3 cr.

52. Systematic Botany. The higher plants of our native flora. The student is required to collect an herbarium of 60 specimens. Miss Mills, Mr. Hodgdon.

Prereq.: Botany 1. Required of seniors in botany and certain juniors in forestry. Occasional lectures; laboratory work; field trips; 2 cr.

53, 54. Advanced Botany. The subject matter will depend upon the training and desire of the student. Elective only upon consultation. Mr. Butler, Miss Mills, Mr. Dunn, Mr. Hodgdon.

Credits to be arranged.

Bacteriology

1. General Bacteriology. Principles of bacteriology; methods for the isolation, cultivation and identification of bacteria and other microorganisms; morphology, physiology and classification of bacteria, and their relationships to agriculture, industry, sanitation and infectious diseases. Mr. Slanetz, Mr. Anderson.

Prereq.: Chemistry 1, 2 or equivalent. Required of juniors in bacteriology and students in certain agricultural and liberal arts curricula; elective for others. 2 lec.; 2 lab.; 4 cr.

2. Applied Bacteriology. Infection and immunity, communicable diseases, important pathogenic bacteria, bacteriological and serological methods used in the classification of bacteria and diagnosis of disease. Methods for testing disinfectants. The bacteriology of water, sewage, milk and food products. Mr. Slanetz, Mr. Anderson.

Prereq.: Bacteriology 1. Required of juniors in bacteriology and students in certain agricultural and liberal arts curricula; elective for others. 2 lec. or rec.; 2 lab.; 4 cr.

3. General Bacteriology. Lectures and recitations or demonstrations, covering the same subject matter as bacteriology 1. For non-professional students who wish to obtain a general knowledge of bacteriology and its importance in every-day life. Mr. Slanetz.

Elective for junior and senior students only. 3 lec. or rec.; 3 cr.

55, 56. Advanced Bacteriology. Special problems, depending upon the training and desire of the student. Elective only upon consultation. Mr. Slanetz.

Prereq.: Bacteriology 2 and chemistry 47 and 48 or their equivalent. Credits to be arranged.

57, 58. BACTERIOLOGY SEMINAR. Reports and discussions on current literature and recent developments in bacteriology. Mr. Slanetz.

Prereq.: Bacteriology 2 and consent of instructor. One 2-hour period; 1 cr.

CHEMISTRY AND CHEMICAL ENGINEERING

HAROLD A. IDDLES, *Professor;* MELVIN M. SMITH, *Associate Professor;* JAMES A. FUNKHOUSER, *Associate Professor;* CHARLES M. MASON, *Associate Professor;* OSWALD T. ZIMMERMAN, *Associate Professor;* ALBERT F. DAGGETT, *Assistant Professor;* EDWARD R. ATKINSON, *Assistant Professor;* JOSEPH W. HICKEY, *Instructor;* WENDELL H. POWERS, *Instructor;* EDWARD F. MELLON, *Graduate Assistant;* DWAYNE F. VIER, *Graduate Assistant;* HERBERT E. SILCOX, *Graduate Assistant;* ROBERT T. HART, *Graduate Assistant.*

The departments of chemistry and chemical engineering and agricultural chemistry occupy Charles James hall. Laboratories, equipment and recitation rooms, modern in every respect, are provided for instruction in all fundamental courses. In addition, ample facilities are available for advanced instruction and research work in inorganic, analytical, physical and organic chemistry.

BREAKAGE. A breakage deposit is required in certain laboratory courses, from which the actual breakage is deducted. The deposit receipt must be presented to the instructor at the first class meeting.

1, 2. GENERAL CHEMISTRY. The fundamental laws and conceptions of chemistry, including a study of the non-metals and metals and their compounds. The theoretical principles are illustrated by many lecture demonstrations, and the applications of chemistry in the professions are explained. Mr. Iddles, Mr. Smith, Mr. Funkhouser, Mr. Atkinson, Mr. Powers and assistants.

Elective for liberal arts students. Required of freshmen in the college of technology, freshmen in agriculture, and sophomores in home economics in a special section. Technology students will be sectioned on the basis of a placement examination taken during freshman week. 2 lec.; 1 rec.; 1 lab.; 4 cr.

4. INORGANIC CHEMISTRY. A continuation of chemistry 1 covering the fundamental laws and conceptions of chemistry involved in a study of the non-metals and metals and their compounds. Facts and practical applications are given, and the principles are explained and illustrated by lecture demonstrations. Mr. Iddles, Mr. Smith, and assistants.

Required of freshmen majors in chemistry. 2 lec.; 1 rec.; 3 lab.; 6 cr.

11, 12. Survey of Chemistry. Lectures and demonstrations on general chemistry, designed for the pursuit of chemistry as an element of general culture rather than as professional training, and for a knowledge of the spirit of a branch of science on which much of our present-day civilization is based. Textbooks: Findlay, The Spirit of Chemistry; Deming, The Realm of Carbon. Mr. Iddles.

Elective for junior and senior students. 2 lec.; 2 cr.

21. Semi-micro Qualitative Analysis. The fundamental theories of solutions and colloids as applied to the reactions of qualitative analysis. As a means of illustrating the theory, problem work is required. The laboratory work uses the semi-micro technique and provides ample experience in the analysis of simple and complex mixtures. Mr. Daggett, Mr. Hickey and assistants.

Prereq.: Chemistry 2 or 4. This course required of sophomores in chemistry; not an elective course. 2 lec.; 2 lab.; 4 cr. Deposit: Five dollars for the semester.

22. Quantitative Analysis. The theory and laboratory technique of the more common determinations of gravimetric and volumetric analysis. Emphasis on the solution of problems. A comprehensive study of the more common analytical methods. Mr. Daggett and assistants.

Prereq.: Chemistry 21. Required of sophomores in chemistry; elective for others. 2 lec.; 3 lab.; 5 cr. Deposit: Five dollars for the semester.

25, 26. Introductory Quantitative and Qualitative Analysis. First semester: The theory, problems and technique involved in some of the common procedures in both gravimetric and volumetric quantitative methods. Second semester: The theory and problems of qualitative analysis. The laboratory work is conducted on a semi-micro scale and presents the special methods of technique involved. For pre-medical students and teachers in secondary schools. Mr. Daggett, Mr. Hickey, and assistants.

Prereq.: Chemistry 2. Elective for pre-medical students; elective for others to the limit of laboratory space. 1 lec.; 2 lab.; 3 cr. Deposit: Ten dollars for the year.

31. Stoichiometry and Technical Quantitative Analysis. The laboratory portion provides sufficient experience to develop the skill and special technique necessary for the analysis of alloys, gaseous, liquid and solid fuels, gas mixtures, oils and lubricants. The lectures interpret the results of technical analyses and their application to the calculation of heat and material balances in industrial processes. Mr. Daggett.

Prereq.: Chemistry 22. Required of juniors in chemistry and chemical engineering; elective for others. 3 lec.; 2 lab.; 5 cr. Deposit: Five dollars for the semester.

32. Advanced Methods of Quantitative Analysis. The theory and technique of special and recently developed methods of analysis such as colorimetry, turbidimetry, potentiometry and spectrography. Sufficient experience is obtained to allow the development of considerable skill in even the more complex methods. Mr. Daggett.

Prereq.: Chemistry 22. Required of juniors in chemistry; elective for others. 3 lec.; 2 lab.; 5 cr. Deposit: Five dollars for the semester.

47, 48. Organic Chemistry. Lectures on the principal classes of organic compounds, aliphatic and aromatic, with emphasis on class reactions and structural theory. Laboratory exercises in the preparation and purification of a selected number of organic compounds; also the use of group reactions for the identification of organic substances in a systematic scheme of qualitative organic analysis. Mr. Iddles.

Prereq.: Chemistry 22. Required of juniors in chemistry and chemical engineering; not an elective course. 3 lec.; 2 lab.; 5 cr. Deposit: Ten dollars for the year.

53, 54. Organic Chemistry. Lectures on the chief divisions of organic chemistry; aliphatic and aromatic, with the needs of the pre-professional student in mind. A more detailed consideration of carbohydrates and proteins follows. The laboratory technique of organic chemical methods as illustrated in the preparation and purification of typical organic compounds. Mr. Funkhouser.

Prereq.: Chemistry 1, 2 and 26 when possible. Elective for liberal arts students. Required of junior pre-medical and pre-dental students. Chemistry 53 alone does not meet the pre-medical or pre-dental requirements; the grade in this course will be filed upon completion of chemistry 54. 3 lec.; 2 lab.; 5 cr. Deposit: Ten dollars for the year.

55, 56. Theoretical Problems of Modern Organic Chemistry. The principles underlying the behavior of organic compounds. A discussion of valence leads to a study of the electron theory of organic chemistry, and this is used as a basis for subsequent discussions of un saturation, tautomerism, free radicals, color and chemical constitution (including an abbreviated treatment of dyestuffs), polymerization and molecular rearrangements. The latter part of the course includes a study of alicyclic compounds, the physical methods used in investigations of organic compounds, and an extensive study of stereoisomerism. The historical background is emphasized. Mr. Atkinson.

Prereq.: Chemistry 48 or 54. Required of seniors in chemistry. 3 lec.; 3 cr.

71, 72. Unit Processes. The important inorganic and organic industrial chemical processes from the point of view of the basic chemical reactions and physical operations involved. Mr. Zimmerman.

Prereq.: Chem. 22. Required of juniors in chemical engineering and seniors in chemistry. 2 lec.; 2 cr.

74, 75. Unit Operations. The theory and practice of the fundamental chemical engineering unit operations, including flow of fluids, flow of heat, evaporation, distillation, drying, filtration, gas absorption, extraction, humidification and air conditioning, crystallization, crushing and grinding, and size separation. Mr. Zimmerman.

Prereq.: Chem. 71, 83. Required of students in chemical engineering. 3 lec.; 3 cr. (Formerly given as Chemistry 73, 74.)

76. Chemical Engineering Economy. The economic factors involved in industrial chemical processes and the application of economic balances to the design and selection of chemical engineering equipment. Mr. Zimmerman.

Prereq.: Chemistry 75, 77. Required of seniors in chemical engineering. 3 lec.; 3 cr.

77. Unit Operations Laboratory. Experiments based upon the unit operations are performed on typical chemical engineering equipment. Mr. Zimmerman.

Prereq.: Chemistry 74, 84. Required of seniors in chemical engineering. 3 lab.; 3 cr. Deposit: Five dollars for the semester. (Formerly given as Chemistry 73, 74.)

78. Chemical Plant Design. The design and layout of chemical plants and equipment. The assigned problems are of a practical nature, such as the manufacture of some chemical product, and their solution will include the design or selection of all equipment and drawings of equipment, plant and layout. Mr. Zimmerman.

Prereq.: Chemistry 75, 77. Required of seniors in chemical engineering. 3 lab.; 3 cr.

80. Chemical Engineering Project. Each student selects a research problem which he carries out independently under faculty supervision. Intensive study in both the library and the laboratory and a satisfactory thesis at the completion of the work are required. Mr. Zimmerman.

Prereq.: Chemistry 75, 77. Required of seniors in chemical engineering. 4 lab.; 5 cr. Deposit: Five dollars for the semester. (Formerly given as part of Chemistry 87, 88.)

82. Pre-Medical and Pre-Dental Physical Chemistry. A brief review and survey of the more important fundamental topics of physical chemistry; thereafter, those topics of physical and theoretical chemistry which have application in the medical, biological, and agricultural sciences. Mr. Mason.

Prereq.: Chemistry 2, elementary physics 2, 6, or 8, mathematics 6 or equivalent. 3 lec.; 3 cr.

83, 84. Elementary Physical Chemistry. The properties of gases, liquids and solids; principles of thermodynamics and applications; solu-

tions, ionic theory, chemical equilibria, thermochemistry, conductance and electromotive force; principles of kinetics and their application to reaction rates. The laboratory will include accurate measurements illustrating the principles studied in the lectures. Mr. Mason.

Prereq.: Chemistry 22, mathematics 8, physics 8. Required of juniors in chemistry and chemical engineering. 3 lec.; 2 lab.; 5 cr. Deposit: Ten dollars for the year.

85, 86. Advanced Physical and Inorganic Chemistry. The structure and properties of matter as developed from studies of radio-activity, atomic structure, crystal structure and related topics; a complete review of elementary physical chemistry and some supplementary topics. Mr. Mason.

Prereq.: Chemistry 84 or equivalent. 2 lec.; 2 cr. (Formerly given as Chemistry 61, 62.)

87, 88. Thesis, Bibliography and Seminar. A thesis covering the related background and experimental observations of the year's investigation in some selected subject is required. Bibliography discussions aid the student in the use of the chemical library and actual problems are assigned requiring the use of various chemical journals, dictionaries, reference books and other sources of information on chemical subjects. In the seminar individual student reports on recent topics of interest in chemistry are given. Members of the staff.

For seniors in chemistry who have completed chemistry 32 and 48. 1 lec.; 5 lab.; 6 cr. Deposit: Ten dollars for the year.

For courses primarily for graduate students, see catalog of the Graduate school.

CIVIL ENGINEERING

Edmond W. Bowler, *Professor;* Russell R. Skelton, *Associate Professor;* Charles O. Dawson, *Instructor;* Salvatore Grasso, *Instructor;* Richard G. Bond, *Assistant.*

The department of civil engineering is in Conant hall. The offices and the drafting, recitation, and lecture rooms are on the first floor, and the instrument rooms and materials testing and soils mechanics laboratories are in the basement. The hydraulic equipment, in the basement of DeMeritt hall, is used for instruction and experimentation. The department is well equipped with transits, levels, plane tables, and current meters for plane, topographic, geodetic and hydrographic surveying.

2. Surveying. The theory and use of surveying instruments and methods, including measurement of angles, direction and distance, differential leveling, trigonometric leveling, land surveying, note keeping, and calculations and plotting relating to traverses. Mr. Dawson.

Prereq.: Mathematics 5 or Mathematics 2 carried in parallel. Required of freshmen in civil engineering. 1 rec.; 2 lab.; 3 cr. (Formerly a part of C.E. 1.)

3. SURVEYING. Further theory and use of surveying instruments and methods, including topographic surveying and mapping, stadia levels, adjustment of instruments, city surveying, and the solution of miscellaneous problems in topographic surveying. A topographic survey of a small area is completed in the field and the map plotted in the laboratory. Mr. Dawson.

Prereq.: Civil engineering 2. Required of sophomores in civil engineering. 1 rec.; 2 lab.; 3 cr. (Formerly a part of C.E. 1 and 2.)

4. SURVEYING. Theory and use of highway and railway curves. Engineering astronomy including observations on the sun and polaris for latitude, longitude, time and azimuth. Mr. Dawson.

Prereq.: Civil engineering 2. Required of sophomores in civil engineering. 1 rec.; 2 lab.; 3 cr. (Formerly a part of C.E. 2.)

6. SURVEYING. Theory and practice relating to preliminary location surveys, including highways, railways, bridges, pipe lines, and sewer lines. A field survey is made to demonstrate the fundamentals of location. Theory and practice of plane table surveys. Mr. Dawson.

Prereq.: Civil engineering 3 and 4. Required of sophomores in civil engineering. 1 rec.; 2 lab.; 3 cr. (Formerly a part of C.E. 2 and 4.)

7. SURVEYING. The theory and use of surveying instruments and methods on plane surveys, including measurement of angles, direction and distance, differential and profile leveling, calculations relating to traverses, and observations on the sun for direction. Mr. Dawson, and Mr. Bond.

Prereq.: Mathematics 6 or 22. Required of sophomores in forestry. 2 lab.; 2 cr.

8. SURVEYING. The theory and use of surveying instruments and methods in topographic surveying and mapping, including a topographic survey of a small area in the field and the plotting of a topographic map of the same area in the drafting room, and observations on the polaris for direction. Mr. Dawson and Mr. Bond.

Prereq.: Civil engineering 7. Required of sophomores in forestry. 2 lab.; 2 cr.

9, (9). SURVEYING. Theory and use of the tape, transit and level in making plane surveys with computations and drafting exercises necessary to plot field notes. Mr. Grasso and Mr. Bond.

Prereq.: Mathematics 2. Required of sophomores in electrical engineering during first semester and of sophomores in mechanical engineering during second semester. 2 lab.; 2 cr.

11. LOCATION MAPPING AND EARTHWORK. A location strip map is plotted from the notes obtained in civil engineering 6, upon which a

paper location is made. Theory and problems in earthwork computations. Mr. Dawson.

Prereq.: Civil engineering 6. Required of juniors in civil engineering. 2 lab.; 2 cr. (Formerly a part of C.E. 4, 5 and 6.)

15. Engineering Materials. Methods of manufacture, physical properties and the application of the various materials used in engineering works, including timber, steel, stone, brick, cement, concrete and bituminous materials. Laboratory experiments and reports on the testing of cements and concrete specimens. Mr. Dawson.

Prereq.: Geology 7 and mechanical engineering 9 either in parallel or as a prerequisite. 2 rec.; 2 cr. (Formerly a part of C.E. 16.)

22. Hydraulics. Principles of hydrostatics and hydrokinetics, including the laws governing static pressures, the flow of water through orifices, tubes, nozzles, weirs, pipe lines and open channels, the dynamic action of jets and streams and fluid flow in pipes. Laboratory exercises in hydraulic machinery and in stream gaging. Mr. Bowler.

Prereq.: Mechanical Engineering 9. Required of Juniors in Civil Engineering. 3 rec.; 1 lab.; 4 cr.

23. Hydraulics. Fundamental principles of hydrostatics and hydrokinetics: fluid pressures, hydraulic gauges and meters, flow through pipes, tubes, orifices and nozzles, flow over weirs, flow in open channels, and the dynamic action of jets and streams. Mr. Bowler.

Prereq.: Mechanical Engineering 9, either in parallel or as a prerequisite. Required of Seniors in Electrical Engineering. 2 rec.; 2 cr.

24. Hydraulics. Fundamental principles of hydrostatics and hydrokinetics: fluid pressure and fluid flow, hydraulic gauges and meters, fluid flow through pipes, tubes, orifices and nozzles, flow over weirs, flow in open channels, the dynamic action of jets and streams, and the theory of tangential and reaction turbines. Mr. Bowler.

Prereq.: Mechanical engineering 7. Required of juniors in mechanical engineering. 3 rec.; 3 cr.

27, 28. Theory of Structures. The graphical and analytical methods of determining reactions, moments and shears in beams, girders and trusses under fixed and moving loads and the stresses in various structures including simple, subdivided and multiple trusses, portals, viaducts, cantilevers and three-hinged arches. The computation of deflections and the application of the method of least work to statically indeterminate structures. Mr. Bowler and Mr. Bond.

Prereq.: Mathematics 8, and mechanical engineering 9 and 10 as prerequisites or in parallel. Required of juniors in civil engineering. 3 rec.; 1 lab.; 4 cr.

31. Highway Engineering and Transportation. The economics of location and design of highways and city streets; methods of construction, maintenance and specifications governing the various types of surfaces; administration and financing of highway systems; special emphasis on highway transportation. Field location and the complete design of a section of highway are included. Mr. Grasso.

Prereq.: Civil engineering 6 and civil engineering 16. Required of seniors in civil engineering. 2 rec.; 2 lab.; 4 cr.

32. Transportation Engineering. The transportation forms, methods and facilities of land, water and air carriers; problems incidental to operation, engineering development, and the influence of transportation on our national growth; a brief study of railroad construction and maintenance from an engineering viewpoint. Mr. Grasso.

Prereq.: Civil engineering 31. Required of seniors in civil engineering. 2 rec.; 1 lab.; 3 cr.

33, 34. Hydraulic and Sanitary Engineering. Precipitation, water losses, run-off, drainage areas, stream flow, water power estimates, hydraulic turbines, dams and water ways; the sources, quantity, quality and sanitary aspects of public water supplies; the methods of purification and distributing systems; the theory and problems of sewerage, the principles governing the disposal of sewage and the various methods of sewage treatment. Computations, reports and problems of design are included. Mr. Bowler.

Prereq.: Civil engineering 22. Required of seniors in civil engineering. 3 rec.; 1 lab.; 4 cr.

35. Structural Design. Theory and problems relating to the design of steel and timber structures. A steel girder and steel roof truss are completely designed and working drawings prepared. Individual parts of steel bridge trusses and buildings are studied and designed. Emphasis on economy of design, accuracy of results, clarity of vision and analytical thought. Mr. Grasso.

Prereq.: Civil engineering 28. Required of seniors in civil engineering. 2 rec.; 2 lab.; 4 cr.

36. Reinforced Concrete Structures. Theory and design of reinforced concrete structures, such as beams, slabs, columns, footings, retaining walls and small bridges. Problems relate to construction and to illustrations of the theory. Mr. Grasso.

Prereq.: Civil engineering 35. Required of seniors in civil engineering. 2 rec.; 2 lab.; 4 cr.

38. Thesis. The student selects a subject of engineering, scientific or commercial interest for investigation or design and presents his results as a thesis in which equal emphasis is placed upon composition and accuracy of subject-matter. Conferences each week for discussion of progress and for guidance in study. Departmental standards for form of

presentation are strictly followed. Mr. Bowler, Mr. Dawson, Mr. Grasso.

Prereq.: English 41. Required of seniors in civil engineering. 1 conference each week; 2 cr.

41, 42, 43, 44. Student Chapter of the American Society of Civil Engineers. Junior and senior students in civil engineering are required to join the student chapter of the American Society of Civil Engineers. In addition to its ordinary life under the guidance of student officers, the chapter meets once a week under the direction of an instructor, when prepared addresses by the student members are presented. Mr. Bowler.

Required of juniors and seniors in civil engineering. No credit.

DAIRY HUSBANDRY

Kenneth S. Morrow, *Professor;* Herbert C. Moore, *Assistant Professor.*

2. Fundamentals of Dairying. A general survey of the dairy industry; the composition and properties of milk and other dairy products, dairy manufacturing processes, and market milk; the selection and judging of dairy cattle. Mr. Morrow, Mr. Moore.

Recommended elective for freshmen or sophomores in agriculture not specializing in dairy husbandry. 2 lec.; 1 lab.; 3 cr.

3. Dairy Cattle. Pure-bred dairy cattle; breed history; pedigrees; family lines and methods of outstanding breeders; the application of the principles of genetics to the improvement of dairy cattle; herd analysis. Mr. Morrow.

Required of seniors in dairy husbandry. 2 lec.; 1 lab.; 3 cr.

4. Milk Production. Feeding and management of dairy animals; calf feeding; raising young stock; feeding for economical milk production. Mr. Morrow.

Required of seniors in dairy husbandry. 2 lec.; 1 lab.; 3 cr.

5. Market Milk. The producing, handling, and distributing of market and certified milk; dairy farm inspection; control of milk supply. Mr. Moore.

Required of seniors in dairy husbandry. 2 lec.; 1 lab.; 3 cr.

6. Ice Cream. The making, handling and marketing of ice cream and ices. Mr. Moore.

Required of seniors in dairy husbandry. 2 lec.; 1 lab.; 3 cr.

7. Butter and Cheese. (1) The secretion and the chemical and physical properties of milk; pasteurization; cream ripening; starters; churning; organization and operation of factories. (2) The manufacturing and marketing of more important types of cheese. Mr. Moore.

Required of juniors in dairy husbandry. 1 lec.; 1 lab.; 2 cr.

9. Domestic Dairying. Nutritive value of milk, market milk, modified milk, certified milk, condensed milk, milk powder, fermented milk, butter, cheese, and ice cream. Laboratory exercises in the manufacture of dairy products. Mr. Moore.

Elective for juniors and seniors in home economics and liberal arts curricula. 2 lec.; 1 lab.; 3 cr.

10. Dairy Bacteriology. The application of bacteriological principles to the production and processing of milk and other dairy products, involving methods of entrance of micro-organisms, effects of their growth, and methods for their control. Mr. Moore.

Prereq.: Bacteriology 1. Required of juniors in dairy husbandry. 2 lec.; 2 lab.; 4 cr.

12. Dairy Seminar. Recent experiment station and other literature covering the field of dairying. Practice in looking up literature and in the preparation of oral and written reports. Mr. Morrow.

Required of seniors in dairy husbandry. Elective for other students. 1 lec.; 2 cr.

13, 14. Dairy Cattle and Dairy Products Judging. (1) Comparative judging of dairy cattle, using animals in the college herd and in near-by herds. (2) The various standards and grades of dairy products with practice in judging milk, butter, cheese, and ice cream.

Cattle judging given first half of fall semester and last half of spring semester; products judging alternates with this schedule. Students interested in competing for judging teams should elect this course. Mr. Morrow, Mr. Moore.

Prereq.: 13 prerequisite for 14. Required of juniors in dairy husbandry. 1 lab.; 1 cr.

52. Advanced Dairy Science. Basic data, fundamental observations, and discussions of research contributing to the present status of the dairy industry. Mr. Moore.

Required of seniors in dairy husbandry. Elective for other students who have adequate preparation in chemistry and bacteriology. 2 lec.; 2 cr.

ECONOMICS AND ACCOUNTING

HARRY W. SMITH, *Professor;* ARTHUR W. JOHNSON, *Associate Professor;* NORMAN ALEXANDER, *Associate Professor;* JOHN D. HAUSLEIN, *Assistant Professor;* RUTH J. WOODRUFF, *Assistant Professor;* CLAIR W. SWONGER, *Assistant Professor;* CARROLL M. DEGLER, *Assistant Professor;* DORIS E. TYRRELL, *Instructor.*

ECONOMICS

Students majoring in economics are expected to take Economics 1 and 2. History, philosophy and American government will be approved as related work for a major in economics.

1, 2. PRINCIPLES OF ECONOMICS. The fundamental principles which explain the organization and operation of the economic system. Mr. Degler, Mr. Swonger and Miss Woodruff.

Prereq.: 1 prerequisite for 2. Required of general business students. Elective for other sophomores, juniors and seniors. 3 lec. or rec.; 3 cr.

3. ECONOMIC AND COMMERCIAL DEVELOPMENT OF THE UNITED STATES. Mr. Smith, Mr. Degler, and Miss Woodruff.

Required of general business students. Elective for sophomores. 3 lec. or rec.; 3 cr. (Formerly offered as Eco. 4.)

4. ECONOMIC AND COMMERCIAL GEOGRAPHY. The economic aspects of geography. The sources and methods of production of the world's staple commodities. The influence of physical environment on economic activity. Mr. Swonger.

Required of general business students. Elective for sophomores. 3 lec. or rec.; 3 cr. (Formerly offered as Eco. 3.)

5. ECONOMIC AND COMMERCIAL DEVELOPMENT OF EUROPE. Mr. Degler.

Elective for sophomores. 3 lec. or rec.; 3 cr. (Not given in 1939–40.)

51. LABOR PROBLEMS. Historical background and present status of labor organizations and problems. Mr. Smith.

Prereq.: Economics 2. Required of general business students. 3 lec. or rec.; 3 cr.

52. PUBLIC FINANCE. Theory and practice of public expenditures and collection of public revenues; changed tendencies and policies in taxation reform; taxation problems in the state of New Hampshire. Mr. Smith.

Prereq.: A satisfactory average in 12 semester credits in economics. 3 lec. or rec.; 3 cr.

10. Transportation. Development and organization of transportation agencies. Mr. Smith.

Prereq.: Economics 2. 3 lec. or rec.; 3 cr. (Formerly offered as Eco. 11.)

12. International Trade. Basic theories of international trade, foreign exchange and international payments.

Prereq.: Economics 2. 3 lec. or rec.; 3 cr. (Not given in 1939–40.)

53, 54. Money and Banking. Theory and practice of money and banking. Mr. Swonger.

Prereq.: Economics 2. 53 prerequisite for 54. Required of general business students. Elective for juniors and seniors. 3 lec. or rec.; 3 cr.

55. Corporations. Development and forms of business organization and combination. Mr. Degler.

Prereq.: Economics 2. Elective for juniors and seniors. 3 lec. or rec.; 3 cr.

56. Corporation Finance. Methods of financing corporate enterprise. Mr. Swonger.

Prereq.: Economics 55. Elective for juniors and seniors. 3 lec. or rec.; 3 cr.

21, 22. Commercial Law. The law of contracts, agency, sales, guaranty, suretyship, mortgages, and negotiable instruments. Mr. Alexander.

Required of general business students. Elective for juniors and seniors. 3 lec. or rec.; 3 cr.

23. Public Regulation of Business. The federal control of business organizations and their activities with special reference to recent legislation affecting industry. Mr. Alexander.

Prereq.: Economics 2. Required of general business students. Elective for juniors and seniors. 3 lec. or rec.; 3 cr.

24. Marketing. The economics of the marketing functions, agencies, and special problems of marketing. Mr. Degler.

Prereq.: Economics 2. Required of general business students. Elective for juniors and seniors. 3 lec. or rec.; 3 cr.

57, 58. History of Economics. A critical account of the development of economic thought in the leading nations of the western world; the economic systems of Greece, Rome, medieval and modern Europe, including the manorial, guild, mercantile, kameralistic, physiocratic, laissez faire, classical, historical and socialistic systems; and the impor-

tant relations of economic philosophy to historical, political and social environment. Mr. Smith.

Prereq.: Senior standing and a satisfactory average in 12 semester credits in economics. 3 lec. or rec.; 3 cr.

59, 60. Seminar in Current Economic Problems. Mr. Smith.

Elective for seniors majoring in economics who have attained a satisfactory average in the department. Recitations and reports; 3 cr.

47, 48. Economic History of the Working Classes. Mr. Smith.

1 lec. or rec.; 1 cr. (Not offered in 1939–40.)

Accounting

Note.—Students who have completed two or more years of bookkeeping in preparatory school will be permitted to register for Intermediate Accounting (3, 4) upon passing an examination covering the material of Elementary Accounting (1, 2).
Schedule the following courses as Acct. 1, etc.

1, 2. Elementary Accounting. Basic principles and theory of accounting, with extensive practice in accounting problems of the single proprietorship and partnership types of business organization. Mr. Hauslein.

Prereq.: 1 prerequisite for 2. Required of general business sophomores. Elective for other sophomores, juniors and seniors. 2 lec. or rec.; 2 lab.; 4 cr.

3, 4. Intermediate Accounting. Continuing work in partnerships; a comprehensive study of corporation accounting; extensive practice work in handling problems of corporation accounting. Mr. Johnson and Mr. Hauslein.

Prereq.: 3 prerequisite for 4. Required of general business juniors. Elective for students who have completed Accounting 2 or its equivalent. See note above. 2 lec. or rec.; 2 lab.; 4 cr.

5, 6. Advanced Accounting. Advanced theory of accounting and extensive practice in solving problems involved; the federal income tax law and the accounting procedure in connection therewith; practice in computing income tax returns. Mr. Johnson.

Prereq.: 5 prerequisite for 6. Elective for students who have completed Accounting 4 or its equivalent. 2 lec. or rec.; 2 lab.; 4 cr.

7, 8. Cost Accounting. The relation of cost accounting to general accounting. The place of cost accounting in modern business. Types of cost systems and their application to particular lines of business.

Careful analysis of methods of computing costs. Effect of recent federal legislation on cost accounting. Mr. Johnson.

Prereq.: 7 prerequisite for 8. Elective for students who have completed Accounting 4 or its equivalent. 2 lec. or rec.; 2 lab.; 4 cr.

9, 10. HOTEL ACCOUNTING. Theory and practice of keeping accounting and financial records for hotels. Mr. Johnson.

Required of students in hotel administration. Prereq.: Accounting 1, 2. 2 lec.; 1 lab.; 3 cr.

SECRETARIAL STUDIES

Schedule the following courses as Shorthand 1, etc., and Typewriting 7, etc.

1, 2. SHORTHAND. Principles of Gregg shorthand with practice in transcribing from shorthand plates and class notes. Typewriting 7, 8 must either be taken in conjunction with this course or precede it. Miss Tyrrell.

Prereq.: 1 prerequisite for 2. Required of secretarial students. 5 rec.; 3 cr.

3, 4. ADVANCED SHORTHAND. A review of fundamental principles, the building of shorthand vocabulary, practice in taking dictation at increasing rates of speed, and (in conjunction with Typewriting 9, 10) practice in developing skill and speed in transcription. Miss Tyrrell.

Prereq.: Shorthand 2, or the equivalent. 3 prerequisite for 4. Required of secretarial students. 5 rec.; 3 cr.

7, 8. TYPEWRITING. Practice in acquiring correct typewriting techniques, and in arranging letters, tabulations and simple manuscripts. Miss Tyrrell.

Prereq.: 7 prerequisite for 8. Required of secretarial students. 5 lab.; 2 cr.

9, 10. ADVANCED TYPEWRITING. Practice in tabulating and in writing business letters, legal papers, and various business forms; and (in conjunction with Shorthand 3, 4) practice in transcribing shorthand notes. Miss Tyrrell.

Prereq.: Typewriting 8, or the equivalent. 9 prerequisite for 10. Required of secretarial students. 5 lab.; 2 cr.

11. FILING. Various alphabetic, numeric, and geographic subject-matter systems of correspondence filing; cross reference; follow-up methods; filing supplies and equipment; practice in filing. Miss Tyrrell.

Prereq.: Typewriting 8. 3 rec. or lec.; 2 cr. (Not offered in 1939–40.)

13. OFFICE MACHINES. Duplicating methods; practice in typing master copies and stencils, and in operating a gelatin duplicator, a mim-

eograph, and a mimeoscope; practice in machine transcription; and an introduction to adding and calculating machines. Miss Tyrrell.

Prereq.: Typewriting 8. 5 lab.; 2 cr. (Not offered in 1939–40.)

EDUCATION

A. Monroe Stowe, *Professor;* Harlan M. Bisbee, *Associate Professor;* Adolph G. Ekdahl, *Associate Professor;* Everett B. Sackett, *Associate Professor;* Naomi G. Ekdahl, *Assistant Professor;* Lashley G. Harvey, *Assistant Professor.*

Helen F. McLaughlin, *Professor* (*Home Economics-Education*); Charles W. Coulter, *Professor* (*Sociology*); Carl Lundholm, *Assistant Professor* (*Physical Education*); Margaret R. Hoban, *Assistant Professor* (*Physical Education*); John A. Floyd, *Instructor* (*French-Education*); *Earl H. Little, *Instructor* (*Agriculture-Education*); Robert H. Grant, *Instructor* (*English-Education*); Harold I. Leavitt, *Instructor* (*General Science and Mathematics*).

COURSES IN EDUCATION

11, (11). Principles of Human Behavior. The purpose of this first course in educational psychology is to offer opportunities to students to acquire such appreciative understandings of important principles of human behavior and mental hygiene as will be helpful to them in controlling their own conduct efficiently, in living more wholesomely, and influencing the conduct of others more intelligently.

Open the first semester to sophomores only and the second semester only to freshmen or sophomores. Either this course or psychology 31 is required of students completing the university teacher-preparation curriculum. 3 rec.; 3 cr.

21, 22. American Society. A content course in educational sociology designed to develop understanding of educationally significant aspects of democratic society and its institutions. Mr. Coulter.

Open only to sophomores preparing to teach in secondary schools who have permission of the department of education. 21 prerequisite for 22. Required of students completing the university teacher-preparation curriculum. 3 rec.; 3 cr.

42. Psychological Principles of Secondary Education. The purpose of this second semester course in educational psychology is to help students acquire appreciative understandings of adolescents and their educational needs and of the most effective ways of meeting those needs.

*Representing the state department of education in the administration of the Smith-Hughes Act.

Prereq.: Education 11 or 41, or Psychology 31. Open to sophomores. Required of students completing the university teacher-preparation curriculum. 3 rec.; 3 cr.

45, (45). New Hampshire State Program of Studies and School Law. The aims and purposes, the plan of organization and administration of the secondary school as outlined in the New Hampshire state program of studies and school law. Mr. Bisbee.

Open to juniors and seniors. Preparatory for the state examinations in secondary program and in school law. 2 rec.; 2 cr.

51, 52. Social Principles of Secondary Education. The educationally significant aspects and needs of modern democratic society. The organization, functions, curricula and outstanding problems of American institutions of secondary education. Mr. Stowe.

Prereq.: Education 42. 51 prerequisite for 52. Required of students completing the university teacher-preparation curriculum. 3 rec.; 3 cr.

61, (61). Principles and Problems of Teaching in the Secondary School. (1) Secondary school objectives and the objectives in the teaching of secondary school subjects; (2) principles of teaching and of directing learning incorporated in teaching which meets the needs of high school students and attains the objectives of the secondary school; (3) secondary school tests and the ways in which teachers are endeavoring to ascertain the extent to which their objectives are being attained; (4) class management, the purpose of which is to insure conditions favorable to the attainment of the objectives of the secondary school. Mr. Bisbee.

Prereq.: Education 42. Required of students completing the university teacher-preparation curriculum. 3 rec.; 3 cr.

71, 72. History of Education. Interested students are advised to elect History 53. (Not offered in 1939–40.)

75. Democracy in Education and Character Development. Discussion of student participation in high school control; social functions; the underlying principles of club work; the problem of character education and a discussion of the moral standards in our high schools as revealed by investigations. Mr. Bisbee.

Prereq.: Education 42. 3 rec.; 3 cr.

76. Philosophy of Education. The fundamental concepts and ultimate objectives of education, current educational doctrines and controversies, changes in educational procedures, historic background and philosophical implications. Mr. Bisbee.

Prereq.: Education 51, 52. 3 rec.; 3 cr.

COURSES IN PROBLEMS IN THE TEACHING OF HIGH SCHOOL SUBJECTS

*The following courses in professionalized subject-matter are devoted to a study of problems of objectives, selection and organization of subject-matter, teaching and testing techniques and classroom management in the teaching of the respective subjects. A student desiring to do supervised teaching must complete with a grade of at least 75 one of these courses in the subject in which he hopes to do supervised teaching.

AGRICULTURE-EDUCATION (AG-ED) 92. PROBLEMS IN THE TEACHING OF HIGH SCHOOL AGRICULTURE. Mr. Little.

Required of seniors taking the agricultural teacher-preparation curriculum, and open only to those students. The equivalent of 2 class meetings; 2 cr.

ENGLISH-EDUCATION (ENG-ED) 91. PROBLEMS IN THE TEACHING OF HIGH SCHOOL ENGLISH. (3 cr.) Mr. Grant.

FRENCH-EDUCATION (FR-ED) 91. PROBLEMS IN THE TEACHING OF HIGH SCHOOL FRENCH. (3 cr.) Mr. Floyd.

GENERAL SCIENCE-EDUCATION (GS-ED) 91. PROBLEMS IN THE TEACHING OF GENERAL SCIENCE. (3 cr.) Mr. Leavitt.

HOME ECONOMICS-EDUCATION (HE-ED) 91. PROBLEMS IN THE TEACHING OF HIGH SCHOOL HOME ECONOMICS. (3 cr.) Mrs. McLaughlin.

MATHEMATICS-EDUCATION (MATH-ED) 91. PROBLEMS IN THE TEACHING OF HIGH SCHOOL MATHEMATICS. (3 cr.) Mr. Leavitt.

PHYSICAL EDUCATION (P-E) 91, 92. PROBLEMS IN THE TEACHING OF PHYSICAL EDUCATION FOR WOMEN. (3 cr.) Miss Hoban.

†BIOLOGY-EDUCATION (BI-ED) 91. PROBLEMS IN THE TEACHING OF HIGH SCHOOL BIOLOGY. (3 cr.)

†CHEMISTRY-EDUCATION (CH-ED) 91. PROBLEMS IN THE TEACHING OF HIGH SCHOOL CHEMISTRY.

Open to seniors and graduate students who have had two years of college chemistry and have satisfactorily completed education 61. Required of students who desire to do supervised teaching in chemistry. 3 rec.; 3 cr.

PHYSICAL EDUCATION 23. PRINCIPLES OF PHYSICAL EDUCATION. (3 cr.)

PHYSICAL EDUCATION 24. CAMP COUNSELING. (3 cr.)

PHYSICAL EDUCATION 37, 38. THE THEORY AND COACHING OF ATHLETICS. (3 cr.)

*For details concerning prerequisites and nature of these courses, see descriptions given under respective subject-matter departments.

† Not offered in 1939–40.

PHYSICAL EDUCATION 40. WINTER SPORTS. (2 cr.)

PHYSICAL EDUCATION 45. FOOTBALL. (2 cr.)

PHYSICAL EDUCATION 46. BASEBALL. (2 cr.)

PHYSICAL EDUCATION 47. TRACK AND FIELD ATHLETICS. (2 cr.)

PHYSICAL EDUCATION 48. BASKETBALL. (2 cr.)

PHYSICAL EDUCATION 61. PROBLEMS OF TEACHING IN PHYSICAL EDUCATION. (3 cr.)

PHYSICAL EDUCATION 35. PLAY AND RECREATION. (3 cr.)

PHYSICAL EDUCATION 36. CAMP ADMINISTRATION. (3 cr.)

PHYSICAL EDUCATION 65. ADMINISTRATION OF PHYSICAL EDUCATION IN SECONDARY SCHOOLS. (3 cr.)

†PHYSICS-EDUCATION (PH-ED) 91. PROBLEMS IN THE TEACHING OF HIGH SCHOOL PHYSICS.

Open to seniors and graduate students who have satisfactorily completed one year of college physics and education 61. Required of students who desire to do supervised teaching in physics. 3 rec.; 3 cr.

HISTORY-EDUCATION (HIST-ED) 91. PROBLEMS IN THE TEACHING OF HIGH SCHOOL HISTORY. (3 cr.) Mr. Harvey.

COURSES IN SUPERVISED TEACHING

This work is required in the teacher preparation curriculum. It is open only to students whose applications are approved by the head of the department of education and the supervisor of student teaching in the subject or subjects in which the applicant desires to do supervised teaching. Applications should be filed in the office of the department of education in October of the academic year in which the supervised teaching is to be done. No applications will be considered unless the applicant has completed with a grade of at least 75 the following courses in education: 11 or 41, and 42, 51, 52, and 61, and, with an average grade of 75 or better, at least 18 semester credits in the subject-matter field in which he desires to teach under supervision. The applicant must also complete with a grade of at least 75 a course in the problems of teaching the subject in which he desires to do supervised teaching.

Students may be enrolled for from 6 to 10 credits of work in supervised teaching in the second semester of the academic year.

EDUCATION-AGRICULTURE (ED-AG) 93. SUPERVISED TEACHING IN HIGH SCHOOL AGRICULTURE. Each senior in the agricultural teacher

† Not offered in 1939–40.

preparation curriculum will spend at least ten weeks as an apprentice teacher in some agricultural high school selected by the state commissioner of education and the professor of education at the University of New Hampshire. This work will be in charge of the regular teacher of agriculture in the high school, and will be supervised by the instructor in agricultural education at the University of New Hampshire. Mr. Little.

Required of seniors taking the agricultural teacher-preparation curriculum, and open only to those students.

EDUCATION-BIOLOGY (ED-BI) 94. SUPERVISED TEACHING IN HIGH SCHOOL BIOLOGY. Prereq.: Bi-Ed 91.

EDUCATION-BOTANY (ED-BOT) 93. SUPERVISED TEACHING IN HIGH SCHOOL BOTANY.

EDUCATION-CHEMISTRY (ED-CHEM) 94. SUPERVISED TEACHING IN HIGH SCHOOL CHEMISTRY. Prereq.: Ch-Ed 91.

EDUCATION-CIVICS (ED-CIV) 94. SUPERVISED TEACHING IN HIGH SCHOOL CIVICS. Prereq.: Hist-Ed 91.

EDUCATION-COMMERCE (ED-CS) 94. SUPERVISED TEACHING IN HIGH SCHOOL COMMERCIAL SUBJECTS.

EDUCATION-ECONOMICS (ED-ECON) 94. SUPERVISED TEACHING IN HIGH SCHOOL ECONOMICS. Prereq.: Hist-Ed 91.

EDUCATION-ENGLISH (ED-ENG) 94. SUPERVISED TEACHING IN HIGH SCHOOL ENGLISH. Prereq.: Eng-Ed 91.

EDUCATION-FRENCH (ED-FR) 94. SUPERVISED TEACHING IN HIGH SCHOOL FRENCH. Prereq.: Fr-Ed 91.

EDUCATION-GENERAL SCIENCE (ED-GS) 94. SUPERVISED TEACHING IN GENERAL SCIENCE. Prereq.: GS-Ed 91.

EDUCATION-HISTORY (ED-HIST) 94. SUPERVISED TEACHING IN HIGH SCHOOL HISTORY. Prereq.: Hist-Ed 91.

HOME ECONOMICS-EDUCATION (HE-ED) 94. SUPERVISED TEACHING IN HIGH SCHOOL HOME ECONOMICS. Prereq.: HE-Ed 91. Mrs. McLaughlin.

EDUCATION-INDUSTRIAL ARTS (ED-IA) 94. SUPERVISED TEACHING IN HIGH SCHOOL INDUSTRIAL ARTS.

EDUCATION-LATIN (ED-LAT) 94. SUPERVISED TEACHING IN HIGH SCHOOL LATIN.

EDUCATION-MATHEMATICS (ED-MATH) 94. SUPERVISED TEACHING IN HIGH SCHOOL MATHEMATICS. Prereq.: Math-Ed 91.

EDUCATION-PHYSICAL EDUCATION (ED-PE) 93, (93). DIRECTED TEACHING IN PHYSICAL EDUCATION.

EDUCATION-PHYSICAL EDUCATION (ED-PE) 94. SUPERVISED TEACHING OF PHYSICAL EDUCATION IN THE FIELD.

EDUCATION-PHYSICS (ED-PH) 94. SUPERVISED TEACHING IN HIGH SCHOOL PHYSICS. Prereq.: Ph-Ed 91.

EDUCATION-SOCIOLOGY (ED-SOC) 94. SUPERVISED TEACHING IN HIGH SCHOOL SOCIOLOGY. Prereq.: Hist-Ed 91.

ZOÖLOGY-EDUCATION (ZOÖL-ED) 93, 94. SUPERVISED TEACHING IN HIGH SCHOOL ZOÖLOGY. Prereq.: Ed-Bi 91.

COURSES PRIMARILY FOR TEACHERS IN SERVICE

The following courses are primarily for teachers in service. Those who are interested should consult with the department of education as to the time they are scheduled.

84. SECONDARY EDUCATION IN THE JUNIOR HIGH SCHOOL. The evolution of the junior high school and its contrast with earlier forms of school organization. The particular features and functions of the school; the educational objectives and philosophy underlying its program; the attempt to humanize adolescent education; the school's function in a democracy; the junior high school as a community centre; articulation between the junior high school and the elementary and senior high schools. The program of studies and the content of various courses of study in both small and large communities with the purpose of adapting this school unit to the problems of the present. Extra-classroom activities and their articulation with classroom procedures. Mr. Bisbee.

Open to teachers in service and to juniors, seniors, and graduate students. One 2-hour rec.; 2 cr.

117. MATERIALS OF GUIDANCE. Tools of the educational-vocational counsellor; tests, rating scales, interviews, and vocational information; the meaning of statistical terms. Mr. Sackett.

To meet the needs of active secondary school teachers and administrators. Seniors with sufficient background of educational courses may be admitted by the instructor. One 2-hour lec., or rec., 2 cr.

118. ADMINISTRATION OF GUIDANCE. The testing program, student and alumni records, the guidance staff, counselling procedure, vocational surveys, vocational training, and problems of the counsellor. Adaptation of guidance theory to actual situations. Mr. Sackett.

No prerequisite, but the student without education 117 or its equivalent will be handicapped. Open to secondary school teachers and administrators and to others who may have the permission of the instructor. One 2-hour lec., or rec., 2 cr.

GEOLOGY 71. HUMAN GEOGRAPHY. The surface of the earth as the home of man. Relation of the physical geographic characteristics of plain, plateau, and mountain regions to their use by man; their varying effect on human activities because of latitude, altitude, weather, structure, and other geographic factors. Wall maps, topographic and geologic maps, atlases, lantern slides, and a well selected library will be available for reference purposes.

Open to teachers of geography and to commercial and social studies teachers. One 2-hour rec; 2 cr.

GEOLOGY 72. GEOGRAPHY OF NORTH AMERICA. The physiography of the continent and its natural divisions in relation to climate, structure and political divisions. Particular emphasis on New England and the United States, but Canada and Mexico are also studied. Maps, references, and lantern slides supplement the class discussion. Mr. White.

Open to teachers of geography and to commercial and social studies teachers. One 2-hour rec.; 2 cr.

HISTORY-EDUCATION (HIST-ED) 91. PROBLEMS IN THE TEACHING OF HIGH SCHOOL HISTORY. The purposes and objectives of teaching high school history; selection and organization of teaching material; teaching and testing techniques which may be advantageously used in teaching high school history; experiments in studying and teaching recent American history.

One 2-hour rec.; 2 cr.

HISTORY-EDUCATION (HIST-ED) 92. PRACTICUM IN THE TEACHING OF HISTORY IN HIGH SCHOOLS. To aid teachers of world history, ancient, early European, and modern history. Appraisal of the difficulties and values of such courses; selection and organization of subject matter, considering the pupil's age and attainment level, to clarify factors and forces and processes of mankind in the past that make the present world more understandable. Objectives, curriculum variations, methods of presentation, reading and activity programs, testing, the teaching of current events, and other problems. The vision, the challenge, and the ideals of social studies instruction will be balanced by the reality of developing teachable units for classroom use. Individual guidance on special problems.

One 2-hour rec.; 2 cr.

GOVERNMENT 59. THE GOVERNMENT OF THE STATE OF NEW HAMPSHIRE. Since the General Court passed its recent legislation requiring the instruction of children in elementary and secondary schools in the subject of the constitution of the state of New Hampshire, many teachers and students have found greater need for information about their state government. This course is designed to meet that desire. The constitutions of the state and incidentally of the federal government will be used as the bases for instruction. A rounded out picture of the

state government, its organization, functions, and problems. Mr. Kalijarvi.

One 2-hour rec.; 2 cr.

Government 60. The Contemporary American Political Scene. For teachers of civics and for those who wish to keep abreast of current political developments in the United States. The adoption of new and the abandonment of old governmental machinery, programs and policies make a review of our government and its manifold problems desirable. The decisions of the federal supreme court, legislation since 1932, the growing demand for better personnel in government, contemplated government reforms, trade agreements, the new position of labor, and other similar topics will be discussed. Students will be required to subscribe to a large metropolitan newspaper. Mr. Kalijarvi.

One 2-hour rec.; 2 cr.

Social Studies-Education (ss-ed) 91. Problems in the Teaching of High School Social Studies. Purposes and objectives of teaching high school social studies; selection and organization of teaching material; teaching and testing techniques which may be advantageously used.

One 2-hour rec.; 2 cr.

Social Studies-Education (ss-ed) 92. Practicum in the Teaching of Social Studies other than History. For social studies teachers interested in economics, sociology, and government, also for administrators and supervisors. Curriculum problems in senior and junior high schools, and the major trends and developments in the social studies field. Consideration of major reports such as those of the commission on the social studies of the American Historical association, the 1936 yearbook of the department of superintendence, and the recent report on history of the college entrance examination board; also books and periodicals of value to social studies teachers. In the subject-matter fields actual units will be developed, and general plans for the courses discussed in view of the pupils' experience and interest and a background study of objectives, teaching technics, activity and reading programs, and testing. The teaching of controversial topics will be given careful consideration. The social studies workroom enables the members of the class to get acquainted with a wide range of textbooks and other materials. Members of the class will be encouraged to work on individual problems and develop their own courses with guidance and advice.

One 2-hour rec.; 2 cr.

courses in psychology

Associate Professor A. G. Ekdahl; Assistant Professor N. G. Ekdahl.

31, (31). General Psychology. A systematic study of essential facts and principles, including sensation and perception, attention, emo-

tion, memory, habit, problem solving and motivation. Emphasis on the rôle of such activities in the development of the total personality and their significance in the individual's adjustment to everyday situations. Mr. Ekdahl.

Open to sophomores who have satisfactorily completed education 11 and to juniors who have not had psychology 22. 3 lec. or rec.; 3 cr.

43. Psychology of Advertising. The problems of advertising and selling. Proper methods of gaining attention and obtaining favorable action, appeal to universal desires and intelligent use of imagination and suggestion in arousing satisfaction and conviction. Proper mental equipment and training of the successful salesman. Scientific methods of evaluating and improving the effectiveness of campaigns and analyzing salesmanship methods. Mr. Ekdahl.

Open to sophomores and juniors who have satisfactorily completed education 11 or psychology 21. Not open to students who have had psychology 25. 3 lec. or rec.; 3 cr.

44. Psychology in Industry. The psychological problems involved in industrial operations and management. A survey of the human factor in the shop or office from the point of view of inherent capacity, training, limits of achievement, monotony, fatigue, and the development and maintenance of morale. Sound and efficient methods of employment and personnel relations. Mr. Ekdahl.

Open to sophomores and juniors who have satisfactorily completed education 11 or psychology 21. Not open to students who have had psychology 26. 3 lec. or rec.; 3 cr.

51. Psychology of Childhood and Adolescence. The mental processes and emotional reactions of the normal child and adolescent are studied in order that personality may be understood. Suitable for those preparing to be teachers, homemakers, social workers, pediatricians, nurses, school psychologists, and clinicians. Mrs. Ekdahl.

Prereq.: Education 11 or psychology 31. 3 lec. or rec.; 3 cr. (Not offered in 1939–40.)

53. Learning and Measurements. A study of the learning process of the individual and a survey of measurements of intelligence and educational achievement. Administration of intelligence tests and construction of informal objective examinations. Mr. Ekdahl.

Prereq.: Psychology 21 or 31. 3 lec. or rec.; 3 cr. (Formerly given as 52.)

57, 58. Experimental Psychology. Standard experiments on sensation, perception, association, imagination, learning and reasoning. Emphasis on the development of the proper technique of psychological investigation. Mr. Ekdahl.

Prereq.: Psychology 31 or in conjunction with psychology 31. 1 lec.; 2 lab.; 3 cr.

64. Abnormal Psychology and Mental Hygiene. The maladjusted individual and the abnormal phenomena as found in feeblemindedness, precocity, the neuroses and the psychoses. The disorders of perception, association, memory, judgment and the personality; recognition and diagnosis of the more common forms of abnormal behavior through presentation of case studies and visits to institutions. Prophylaxis through mental hygiene. Ways and means of maintaining mental balance through the cultivation of healthful attitudes and activities in home, school and community. Mr. Ekdahl.

Prereq.: Psychology 21 or 31, or education 11. 3 lec. or rec.; 3 cr. Not open to students who have had psychology 48 or 62.

65. Physiological Psychology. The physiological aspects of sensations, perceptions, memory and learning. A consideration of possible correlations between nerve functions and mental activity. Mr. Ekdahl.

Prereq.: One year of psychology. 3 lec. or rec.; 3 cr. (Not offered in 1939–40.)

66. Comparative Psychology. Psychogenesis beginning with one-celled animals. Simple experiments in animal learning. Mr. Ekdahl.

Prereq.: One year of psychology. 3 lec. or rec.; 3 cr. (Not offered in 1939–40.)

68. Systematic Psychology. A brief survey of the field of theoretical psychology. Psychological concepts and theories as developed by modern "schools" of psychology, such as Functionalism, Behaviorism, Gestalt, and Structuralism. Mr. Ekdahl.

Prereq.: One year of psychology. 3 lec. or rec.; 3 cr. (Not offered in 1939–40.)

71, 72. Seminar: Special Problems in Psychology. Mr. Ekdahl.

Prereq.: Two years of psychology. ½ to 3 cr.

ELECTRICAL ENGINEERING

Leon W. Hitchcock, *Professor;* Frederick D. Jackson, *Assistant Professor;* William B. Nulsen, *Assistant Professor*

The department of electrical engineering is located in DeMeritt hall. The main laboratory is used for testing electrical machinery and experiments involving the generation and distribution of power. It contains a large distribution switchboard on which are mounted instruments, switches, circuit breakers and plugging devices which provide a means of supplying either direct or alternating current to the various panels in the laboratory and to the lecture rooms in the building. The power supply is furnished by two motor-generator sets. The general equipment consists of direct and alternating current generators and motors, transformers, rectifiers, synchronous converters, regulators, etc.

A second laboratory is devoted to experiments involving communication and electronic devices. This laboratory has available for its power

supply not only the facilities of the main laboratory, but in addition its own motor-generator sets and storage batteries. The general equipment consists of an artificial open wire telephone line, an artificial telephone cable line, telephone repeaters, a magneto and a common battery exchange switchboard, oscillators, amplifiers, public address systems, a broadcasting control panel, equipment for recording radio programs, and oscillographs, meters, bridges, etc., for measuring the characteristics of telephone and radio circuits, and the electrical characteristics of speech, music, etc.

The lecture room of the department is connected directly with both laboratories so that class demonstrations can be provided readily. A small motor-generator set with the necessary meters is so mounted in this room that the characteristics of generators and motors as well as of other types of electrical equipment can be presented before the class.

1, 2. ELECTRICAL ENGINEERING. An elementary study of electrical circuits and machinery. Mr. Hitchcock.

Required of sophomores in electrical engineering. 1 rec.; 1 lab.; 2 cr.

3, 4. ELECTRICAL ENGINEERING. A continuation of electrical engineering 2. Electric and magnetic circuits, direct current generators and motors, armature windings, batteries, alternating current circuits, alternators and transformers. Mr. Nulsen and Mr. Jackson.

Prereq.: Physics 8, mathematics 8 and electrical engineering 2. Required of juniors in electrical engineering. 3 rec.; 3 cr.

5. ELECTRICAL ENGINEERING. A continuation of electrical engineering 4. Induction motors, regulators, synchronous motors, converters and rectifiers; transmission line regulation, efficiency, insulation, lightning protection, sag and tension, etc. Mr. Hitchcock.

Prereq.: Electrical engineering 4. Required of seniors in electrical engineering. 3 rec.; 3 cr.

7. ELECTRONICS AND COMMUNICATION. Principles of electronic apparatus; vacuum tubes, vacuum tube amplifiers, gaseous triodes, photo-electric cells and their application in electrical communication and in industry. Mr. Jackson.

Prereq.: Electrical engineering 4, 33, 36 or 38. Required of seniors in electrical engineering. 2 rec.; 1 lab.; 3 cr.

8. TELEPHONE COMMUNICATION. Principles of basic telephone apparatus and circuits. A detailed study of telephone transmission including inductive interference, equivalent networks, the infinite transmission line, the determination of line and cable characteristics, repeaters, filters, measurement of transmission characteristics, and the study of routine repeater tests. Mr. Jackson.

Prereq.: Electrical engineering 7. Elective for seniors in electrical engineering. 3 rec.; 1 lab.; 5 cr.

10. Advanced Circuit Theory. Application of mathematics to the solution of electrical circuit problems, including the use of differential equations, Heaviside's operators, and symmetrical phase components; derivation of fundamental formulas and constants. Mr. Nulsen.

Prereq.: Electrical engineering 5. Elective for selected seniors in electrical engineering. 3 rec.; 1 lab.; 4 cr.

12. Illumination. Principles of illumination and photometry, light sources, residential and commercial lighting, street lighting, display and advertising lighting; wiring methods and calculations: National Electrical Code rules. Mr. Nulsen.

Required of seniors in electrical engineering. Elective for students who have completed electrical engineering 33, 36 or 38. 2 rec.; 2 cr.

13, 14. Electrical Problems. Problems involving magnetic circuits, direct and alternating current circuits and machinery, and complex notation. Mr. Hitchcock and Mr. Nulsen.

Required of juniors in electrical engineering. 2 rec.; 2 cr.

15, 16, 17, 18. Student Branch of the American Institute of Electrical Engineers. A student organization conducted in accordance with the by-laws of the Institute with meetings given a place on the student's class schedule. Each student is required to present and discuss an approved subject. At times the meeting may take the form of a debate, an address by an outside lecturer or a motion picture of an instructive nature. Students in this course must become student members of the A.I.E.E. and must subscribe to a magazine selected by the department.

Required of juniors and seniors in electrical engineering. 1 rec.; no cr.

19, 20. Thesis. An original investigation offering opportunity for a better understanding of the fundamental principles and theory underlying electrical engineering practice and the design and operation of electrical equipment. Apparatus constructed as a part of a thesis becomes the property of the department. A statement of progress must be submitted at the conclusion of each scheduled period. A thesis may be discontinued at any time if there appears to be a lack of interest or ability, or for failure on the part of the student to report at the periods scheduled. Members of the staff.

Elective for seniors in electrical engineering. 3–5 lab.; 3–5 cr.

23, 24. Laboratory. Operation and test of direct and alternating current equipment; laboratory practice and report presentation. Mr. Nulsen.

Prereq.: Electrical engineering 2. Required of juniors in electrical engineering. 1 lab.; 2 cr.

25. Laboratory. A continuation of electrical engineering 24. Mr. Nulsen.

Prereq.: Electrical engineering 24. Required of seniors in electrical engineering. 2 lab.; 4 cr.

26. Laboratory. Advanced laboratory testing and special problems. The student works on problems of his own selection which have been outlined by him and have received approval. This may be in the form of a semester thesis, or a series of original experiments. Mr. Nulsen.

Prereq.: Electrical engineering 25. Elective for selected seniors in electrical engineering. 4 lab.; 4 cr.

28. Advanced Electronics Laboratory. Special radio problems, electron tube applications of a research nature, or studies and applications of audio frequency amplifier systems. Mr. Jackson.

Prereq.: Electrical engineering 7. Elective for technology seniors with permission of the department. Lab. and conferences; 4 cr.

31. Circuits and Appliances. Electrical circuits and appliances; types of wiring; National Electrical Code requirements; fuses and circuit breakers; meters; motors; signal circuits and telephones. Mr. Hitchcock.

Required of juniors in hotel administration and seniors in architecture. 3 rec.; 1 lab.; 4 cr.

33. Fundamentals of Electricity. Fundamentals of electric and magnetic circuits, storage batteries, direct and alternating current equipment, electronics. Mr. Nulsen.

Required of seniors in chemical engineering. 3 rec.; 1 lab.; 4 cr.

36. Practical Electricity. Direct and alternating current circuits, wiring for light and power, generation of electric power, motors, transformers, controlling devices. Mr. Hitchcock.

Required of juniors in civil engineering. 3 rec; 1 lab.; 4 cr.

37, 38. Electrical Machinery. Direct and alternating current circuits, theory and characteristics of electric motors and generators, starting and control equipment. Mr. Jackson.

Required of juniors in mechanical engineering. 3 rec.; 1 lab.; 4 cr.

42. Principles and Applications of Electron Tubes. Vacuum tubes, vacuum tube amplifiers, gaseous triodes, photo-electric cells and their application in industry. Mr. Jackson.

Prereq.: Electrical engineering 33, 36 or 37. Elective for students not registered in the electrical engineering curriculum. 3 rec.; or 2 rec. and 1 lab.; 3 cr.

ENGLISH

ALFRED E. RICHARDS, *Professor;* HAROLD H. SCUDDER, *Professor;* WILLIAM G. HENNESSY, *Associate Professor;* LUCINDA P. SMITH, *Associate Professor;* EDMUND A. CORTEZ, *Assistant Professor;* PAUL S. SCHOEDINGER, *Assistant Professor;* CARROLL S. TOWLE, *Assistant Professor;* ROBERT G. WEBSTER, *Assistant Professor;* THOMAS H. MCGRAIL, *Assistant Professor;* SYLVESTER H. BINGHAM, *Assistant Professor;* ROBERT H. GRANT, *Instructor;* BARBARA ROWELL, *Assistant;* CHARLES H. MELNICK, *Graduate Assistant.*

GENERAL REQUIREMENTS

All freshmen are required to take English 1, 2. Those who pass it will be given six semester credits at the close of their senior year. All freshmen will be examined in this subject during Freshman week. Those who pass this examination will be released from attendance upon its group conferences at once. If at any later date in their four-year course they are reported by any of their instructors to be deficient in this subject, they will be required to enter its instruction groups. No one not released from instruction at the close of his senior year will be eligible for graduation. Students who enter the university prior to 1939–40, for whom this course is not required, may enroll in it if they so desire.

DEPARTMENTAL REQUIREMENTS

A major program in the department of English consists of 24 semester credits of English literature passed with a grade of 75 or better. The following courses are required of all English majors: *Survey of English Literature, Survey of American Literature, Shakespeare's Plays, Chaucer.* Of these courses all but the first-mentioned (*Survey of English Literature,* which is open to freshmen) carry major credit if passed with the required grade of 75 or better.

WRITING LABORATORY

The department maintains a writing laboratory for the convenience of all students in the university. Whether enrolled in English courses or not, the student may bring daily to this laboratory such written work as he may be engaged upon. He will find there comfortable facilities for writing, and may avail himself of such advice or assistance as he may need from a department representative.

1, 2. ELEMENTARY WRITTEN AND ORAL ENGLISH. Designed to meet the needs of each student, and consequently varying in content for each individual. All freshmen will be examined during Freshman week in this subject, and those whose attainments are found to be satisfactory will be released from instruction at once. Others will be grouped for individual instruction, and will be released individually from time to time as soon as their work is found to be satisfactory. Anyone may be recalled and reassigned to an instruction group at any time in his four years in college upon report of any member of the faculty that the stu-

dent's work in English is deficient. Six credits will be given for the work of the course at the close of the senior year, and no one not released from instruction at the end of the senior year may receive this credit, or be eligible for graduation. Mr. Webster, and a special staff.

Required of all freshmen. Conference schedules will be arranged by instructors. Members of upper classes may enroll if they desire, applying to Mr. Webster.

3, 4. SURVEY OF ENGLISH LITERATURE. A general survey of English literature from its beginnings to the year 1900. Lectures and recitations. Mr. Schoedinger.

Open to all students. 3 lec. or rec.; 3 cr.

5, (5). PLAY PRODUCTION. This is not an elective, but a laboratory course in the public presentation of notable plays. Members of the course are elected by competitive trial, and credit is given both for acting and for technical assistance. Open to all students except freshmen in the first semester. Mr. Hennessy.

½ to 3 cr.

6. VARSITY DEBATING. Designed to give experience in public discussion and debate. Debates will be arranged with other college teams.

Open to all students by try-out. No student may receive more than six credits in this course during his entire four years. 1–6 semester credits.

43, 44. READING FOR THOUGHT. Analysis of the thought and structure of the three forms of writing: (first semester) exposition; (second semester) description and narration. Themes are required in order to provide through actual practice, an appreciation of structural differences. Mr. Bingham.

Elective for all freshmen. 3 lec. or rec.; 3 cr.

COURSES PRIMARILY FOR SOPHOMORES

7, 8. ADVANCED COMPOSITION. Study and practice of writing brief impressions, essays, sketches and narrative. Collateral readings; weekly conferences. Each semester's study must be taken in its chronological order, unless special permission is given. Mr. Towle.

Prereq.: English 1, 2. Elective for sophomores, juniors and seniors. 3 lec. or rec.; 3 cr.

10. NEWS WRITING. A practical study of the preparation of articles for newspapers and magazines. It is for all whose vocations will demand frequent writing for publication, and it is a preparation in part for those who intend to take up newspaper work after graduation. It does not cover the entire field of journalism, but the student will be instructed in the duties of a reporter and be given constant practice in writing news stories. Mr. Scudder.

Prereq.: For sophomores, a grade of 75 or better in English 1, 2; for freshmen, the recommendation of the instructor in charge of English 1, 2. 3 lec. or rec.; 3 cr.

11, 12. Survey of American Literature. Lectures and extensive outside reading. Mr. Scudder.

Elective for sophomores, juniors, and seniors. 3 lec. or rec.; 3 cr.

14. Mediaeval and Elizabethan Drama. A survey of the English drama, exclusive of Shakespeare, from its beginnings to the closing of the theatres (1642). Mr. Scudder and Mr. McGrail.

Prereq.: English 1, 2. Elective for sophomores, juniors, and seniors. 3 lec. or rec.; 3 cr.

15. Non-Dramatic Elizabethan Poetry. The English Renaissance in non-dramatic poetry and its development throughout the sixteenth century. Special reference to Spencer's *Faerie Queene*. Mr. Richards.

Prereq.: English 1, 2. Elective for sophomores, juniors, and seniors. 3 lec. or rec.; 3 cr. (Given in alternate years; offered in 1939–40.)

17, 18. English Literature in the Seventeenth Century. Poetry and prose from Shakespeare and Bacon to Swift and Pope, omitting the drama and the works of Milton. The poetry of John Donne and his school; of Jonson, Herrick and the "Cavaliers"; of Denham, Waller and Dryden; of the followers of Spenser, etc. The prose of such writers as Izaak Walton, Bunyan, Sir Thomas Browne, Fuller, Taylor, and John Dryden. One hour of the week will be devoted to round-table discussion in small groups. Mr. Towle.

Prereq.: English 1, 2; 17 prerequisite for 18. Elective for sophomores, juniors, and seniors. 2 lec. or rec.; 1 lab.; 3 cr. (Given in alternate years; not offered in 1939–40.)

19. English Grammar. The fundamentals of English grammar in order to provide an understanding of the language from a structural point of view. A thorough drill in the rules and classifications.

Required for those who take English-education 91. Elective for sophomores, juniors, and seniors. In 1939–40, required of seniors who are also taking English-education 91.

20. Pope and His Age. The literature of the first half of the eighteenth century, with special reference to Pope, Swift, Addison, and Steele. Mr. Schoedinger.

Prereq.: English 1, 2. Elective for sophomores, juniors, and seniors. 3 lec. or rec.; 3 cr. (Given in alternate years; offered in 1939–40.)

22. Johnson and His Circle. Boswell, Johnson and their time. Mr. Scudder.

Prereq.: English 1, 2. Elective for sophomores, juniors, and seniors. 3 lec. or rec.; 3 cr. (Given in alternate years; not offered in 1939–40.)

23, 24. VICTORIAN PROSE. English prose of the nineteenth century. Particular attention is given during the first semester to the work of Coleridge, Lamb, Carlyle, Hazlitt, and Matthew Arnold; in the second semester to the work of John Ruskin as a writer of brilliant prose, art critic, and social reformer. Mr. Richards and Mr. Webster.

Prereq.: English 1, 2; 23 prerequisite for 24. Elective for sophomores, juniors, and seniors. 3 lec. or rec.; 3 cr. (Given in alternate years; offered in 1939–40.)

25, 26. VICTORIAN POETRY. English poetry from 1830 to 1900, with special reference to Tennyson and Browning. Mr. Schoedinger.

Prereq.: English 1, 2; 25 prerequisite for 26. Elective for sophomores, juniors, and seniors. 3 lec. or rec.; 3 cr. (Given in alternate years; not offered in 1939–40.)

28. THE BIBLE AS LITERATURE. A study of the various literary types found in the Bible, and a survey of the influence of the Bible on English literature. Mr. Richards.

Prereq.: English 1, 2. Elective for sophomores, juniors, and seniors. 3 lec. or rec.; 3 cr.

29, 30. SURVEY OF ART. The development of architecture, painting, and sculpture as illustrated by representative masterpieces from Greek, Roman, Gothic, Renaissance and modern periods. Lectures, assigned readings, and the study of art prints. Mr. Hennessy.

Elective for sophomores, juniors, and seniors. 3 lec.; 3 cr.

32. MODERN BRITISH POETRY. A study of British poetry written since 1900. Mr. Towle.

Prereq.: English 1, 2. Elective for sophomores, juniors, and seniors. 3 lec. or rec.; 3 cr. (Given in alternate years; offered in 1939–40.)

34. MODERN AMERICAN POETRY. A study of American poetry written since 1900. Mr. Towle.

Prereq.: English 1, 2. Elective for sophomores, juniors, and seniors. 3 lec. or rec.; 3 cr. (Given in alternate years; not offered in 1939–40.)

35, (35). PUBLIC SPEAKING. Practice in the use of time, change in pitch, emphasis, and inflection of voice; drills in articulation and pronunciation; exercises in posture and poise; extemporaneous speaking; a foundation course for prospective business men and teachers. Mr. Cortez.

Elective for sophomores, juniors, and seniors. 3 rec.; 3 cr.

36. ORAL READING. The art of reading from the page; expressive reading of lyrics and other types of literature; platform reading for

entertainment; choric speaking. Students must secure permission of the instructor before enrolling for this course. Mr. Cortez.

Prereq.: English 35 or its equivalent. Elective for sophomores, juniors, and seniors. 3 rec.; 3 cr.

COURSES PRIMARILY FOR JUNIORS

37, 38. Forum Discussion and Debate. First semester: the proposition and its main issues; sources and tests of evidence; construction of the argumentative brief; principal laws of reasoning; principal fallacies of reasoning; practice debates. Second semester: elements of parliamentary law and parliamentary debates; forum discussion and debate; "round table" discussion; court pleas; sales argument, etc. Subjects for research and debate will be selected from current events of state, national, and international importance. Mr. Cortez.

Prereq.: English 35 or its equivalent. 37 prerequisite for 38. Elective for juniors and seniors (and for sophomores by permission of the instructor). 3 rec.; 3 cr. (Not offered in 1939–40.)

40. Stage Direction. A laboratory course in the fundamentals of acting, stage direction, and allied phases of play production. Designed to fit the needs of prospective teachers, particularly teachers of English. Mr. Hennessy.

Prereq.: The permission of the instructor. Elective for sophomores, juniors, and seniors. 3 lab.; 3 cr.

52. Introduction to Drama. A comprehensive survey of dramatic literature from the Greek drama to the present. Mr. Hennessy.

Elective for juniors, seniors, and graduate students. 3 lec. or rec.; 3 cr. (Given in alternate years; offered in 1939–40.)

53, 54. Shakespeare's Plays. A study of the major histories, comedies, and tragedies. Shakespeare is interpreted as poet and as dramatist. Mr. Hennessy.

Prereq.: 53 prerequisite for 54. Elective for juniors, seniors, and graduate students. 3 lec.; 3 cr.

55. Milton. Milton's minor poetry and the *Paradise Lost.* Consideration of the social, political and religious history of Milton's day. Mr. Scudder.

Elective for juniors, seniors, and graduate students. 3 lec.; 3 cr. (Given in alternate years; offered in 1939–40.)

57. The English Novel in the Eighteenth Century. The novel from Defoe through the Gothic Romance. Lectures and constant outside reading. Mr. Schoedinger.

Elective for juniors, seniors, and graduate students. 3 lec. or rec.; 3 cr. (Given in alternate years; offered in 1939–40.)

59. The English Novel in the Nineteenth Century. The novel from Jane Austen to Thomas Hardy. Lectures, recitations, and constant reading. Mr. Scudder.

Elective for juniors, seniors, and graduate students. 3 lec.; 3 cr. (Not offered in 1939–40.)

61, 62. The English Romantic Writers. The major writers of the early nineteenth century, such as Wordsworth, Coleridge, Byron, Lamb, Shelley, Hazlitt and Keats. Readings from the work of many minor writers, especially those of the late eighteenth century. One hour of the week devoted to round-table discussion with small groups. Mr. Towle.

Prereq.: 61 prerequisite for 62. Elective for juniors, seniors, and graduate students. 2 lec.; 1 rec.; 3 cr.

63, 64. Advanced American Literature. A series of studies in special fields, the subjects to be announced. In 1939–40 the subjects are: The American Novel, and The New England Renaissance. Mr. Scudder.

Elective for juniors, seniors, and graduate students. 3 lec.; 3 cr.

65, 66. Writing as an Art. The study and practice of forms of writing through an examination of the history of literary criticism. Reading of famous critical essays and of many contemporary opinions, correlated with practice writing of various types. Each student is allowed to spend much of his time with the type he finds most congenial. Collateral readings, with frequent class discussions and conferences. Mr. Towle and Mr. Webster.

Prereq.: English 7. 65 prerequisite for 66. Elective for juniors, seniors, and graduate students. 2 lec.; 1 rec.; 3 cr. (Given in alternate years; offered in 1939–40.)

COURSES PRIMARILY FOR SENIORS

67, 68. Chaucer. Chaucer's life and times, and a reading of most of his poetry. First semester: Old and Middle English grammar as an introduction to the language of Chaucer. Second semester: *Troilus and Cressida*, and *The Canterbury Tales*. Mr. Richards.

Prereq.: 67 prerequisite for 68. Elective for seniors and graduate students. 3 lec. or rec.; 3 cr.

SERVICE COURSES

41, (41). Expository Writing. Practice in the writing of reports and other papers pertaining to technical subjects: recommendation reports, progress reports, information reports; term papers or short theses; business letters of various types, such as letters of application, of complaint, and of sales. Mr. Webster.

Required of seniors in civil, electrical, and mechanical engineering, and of seniors in agriculture. 2 lec.; 2 cr.

English-Education (eng-ed) 91. Problems in the Teaching of High School English. The selection and organization of subject-matter, the most efficient methods of presenting this material, and the problems which arise within the wide field of the teaching of high school English. Mr. Grant.

Prereq.: Three years of English courses including English 19. Required of students majoring in English who plan to teach English in secondary schools. Elective for students majoring in language, history, or education. 2 lec.; 1 lab.; 3 cr.

ENTOMOLOGY

Walter C. O'Kane, *Professor;* James G. Conklin, *Instructor.*

Note.—Work in the department of entomology is largely individualized. So far as possible each student is permitted to choose the topics to which he will give special attention. This applies to each course offered by the department. Laboratory work may be done whenever the laboratory is open. Reference books are issued from the department library at any time. Lecture periods are occupied largely with discussion, in which students participate.

1. Principles of Economic Entomology. The relation of the structure and classification of insects to methods of insect control. The preparation and application of insecticides. Studies of the life history and control of insect pests. Mr. O'Kane, Mr. Conklin.

Recommended elective for freshmen in agriculture. 2 lec.; 1 lab.; 3 cr.

52. Insects of Orchard and Garden. The application of methods of insect control of typical injurious species. Life histories and habits of important insect pests of orchard, garden and certain field crops. Adapted especially for students in horticulture and in general agriculture. Mr. Conklin.

Prereq.: Entomology 1. Elective for juniors and seniors. 1 lec.; 1 lab.; 2 cr. (Given in alternate years; offered in 1939–40.)

53. Insects of Domestic Animals. The insect enemies of domestic livestock; the life histories, habits and means of control. Adapted especially for students in animal husbandry. Mr. Conklin.

Prereq.: Entomology 1. Elective for juniors and seniors. 1 lec.; 1 lab.; 2 cr. (Given in alternate years; not offered in 1939–40.)

54. Household Insects. Medical Entomology. The life histories, habits and means of control of insects of the household and of stored products. The relation of insects to disease. Adapted especially for students in home economics. Mr. O'Kane, Mr. Conklin.

Recommended for seniors in institutional management. Elective for juniors and seniors. 1 lec.; 1 lab.; 2 cr.

56. Forest Insects. The life histories and habits of the more destructive forest insects and means of their control. Adapted especially for students in forestry. Mr. Conklin.

Prereq.: Entomology 1. Recommended for juniors in forestry. Elective for others. 1 lec.; 1 lab.; 2 cr.

57, 58. Advanced Entomology. The anatomy and physiology of insects. The orders and families of insects. Mr. O'Kane, Mr. Conklin.

Prereq.: 57 prerequisite for 58. Open to students only by permission of the head of the department. Required of students specializing in entomology. 2 lec.; 2 lab.; 4 cr.

59, 60. Advanced Economic Entomology. Problems involved in applied entomology. The literature of economic entomology. Investigational methods. Practice in arranging projects. Studies in the specialized phases of entomology. Mr. O'Kane, Mr. Conklin.

Open to students only by permission of head of department. Prereq.: 59 prerequisite for 60. Required of students specializing in entomology. Hours and credits to be arranged.

For courses primarily for graduate students see catalog of the Graduate school.

FINE ARTS

The courses in the fine arts offered by several departments within the university are here grouped for the convenience of students who wish to elect work in this field of study.

Students desiring to extend their major programs with courses in the fine arts should consult with Mr. George R. Thomas of the department of architecture.

HISTORY AND APPRECIATION OF THE FINE ARTS

Architecture 9. Architectural Composition. Mr. Perreton.

Architecture 14. Domestic Architecture. Mr. Huddleston.

Architecture 2. Elements of Architecture. Mr. Perreton.

Home Economics 31, 32. Home Building and Furnishing. Miss Bowen.

Home Economics 7, 8. Historic Costume and Design. Miss Bowen.

Architecture 5, 6. History of European Architecture. Mr. Perreton.

Architecture 7. History of American Architecture. Mr. Perreton.

English 29, 30. Survey of Art. Mr. Hennessy.

Architecture 3. The Significance of Architecture. Mr. Huddleston.

GRAPHIC AND PLASTIC ARTS

Home Economics 9, 10. Applied Design. Miss Bowen.

Architecture 26. Architectural Design. Mr. Perreton.

Horticulture 28. Elementary Landscape Gardening. Mr. Clapp.

Physics 14. Elementary Optics and Photography. Mr. Moran.

Horticulture 38. Floral Design. Mr. Clapp.

Mechanical Engineering S13 (S13). Forge Shop. Mr. O'Connell.

Architecture 37. Freehand Drawing. Mr. Thomas.

Architecture 38. Freehand Drawing. Mr. Thomas.

Architecture 39, 40. Freehand Drawing. Mr. Thomas.

Architecture 45, 46. Advanced Freehand Drawing. Mr. Thomas.

Architecture 24. Shades, Shadows and Perspective. Mr. Thomas.

Architecture 41, 42. Water Coloring and Modeling. Mr. Thomas.

Home Economics 11, 12. Pottery. Miss Phelps.

Home Economics 13, 14. Pottery. Miss Phelps.

Mechanical Engineering S3 (S3). Wood Work. Mr. Batchelder.

Mechanical Engineering S6. Wood Shop. Mr. Batchelder.

For courses in music, dramatic art, and dancing, see departments of music, English, physical education for women and physical education for men.

The committee on fine arts will promote on the campus exhibitions and lectures treating the arts, also organized visits to nearby museums and points of interest. Published lists of these visits are available. The following are a few of the art centers within a convenient radius of Durham: Addison Gallery of American Art, Currier Gallery of Art, Museum of Fine Art of Bowdoin College, and several excellent museums and galleries in Boston, including the Boston Museum of Fine Arts, the Gardner Museum, and the Fogg Museum at Harvard University.

FORESTRY

Clark L. Stevens, *Professor;* Karl W. Woodward, *Professor;* Lewis C. Swain, *Instructor.*

2. Principles of Forestry. The value of forests, their protection, utilization, improvement and regeneration, discussed with special reference to New Hampshire conditions. Mr. Woodward.

Recommended elective for freshmen in agriculture except those in forestry. 2 lec.; 1 lab.; 3 cr.

4. Principles of Forestry. The same as forestry 2, except that no laboratory work is included. Mr. Woodward.

Elective for any student. 2 lec.; 2 cr.

5, 6. Tree and Wood Identification. The characteristics of our native tree species, and the identification of trees in the field and from specimens. Additional practice in identifying northern species is given during summer camp. The uses of lumber, physical properties and

identification of the commercially important woods. Personal ownership of a hand lens is required. Mr. Swain.

Recommended elective for freshmen in forestry, elective for others. 2 lec.; 1 lab.; 3 cr.

7, 8. Forest Mensuration. Practice in forest mapping; measurement of forest products; timber cruising; and studies of growth and yield of the commercial tree species of New England. The course is continued during summer camp. Personal ownership of a box compass is required. Mr. Stevens.

Required of juniors in forestry. Elective for others, with approval of the instructor. 2 lec.; 1 lab.; 3 cr.

9, 10. Silviculture. The art of producing and tending a forest. Seed collection, storage and testing; nursery practice; forest plantations; systems of natural regeneration; intermediate cuttings; forest protection, and discussion of silvicultural practice in the most important forest regions of the United States. Mr. Stevens.

Required of sophomores in forestry. Elective for others, with approval of the instructor. Prereq.: Forestry 5, 6. 2 lec.; 1 lab.; 3 cr.

11, 12. Forest Utilization. Methods and costs of logging and milling in the chief lumber-producing regions of the United States; forest products, their manufacture, marketing and use; with special problems of the lumber business. Emphasis on New England conditions. Attendance on instruction trips is required for credit. Mr. Swain.

Required of certain juniors in forestry. Elective for others. 2 lec.; 1 lab.; 3 cr.

13. Forest Improvements. Forest protection and methods of construction and maintenance of the more important physical improvements of the forest. Includes roads, trails, simple bridges, culverts, telephone lines, cabins, lookout stations, waterholes, dams, and recreational facilities. Mr. Swain.

Recommended elective for juniors in forestry. Elective for others, with approval of the instructor. 2 lec.; 1 lab.; 3 cr.

14. Fish and Game Management. An introductory course designed to acquaint the student with the fundamental principles underlying the management of wild life as a forest crop. Mr. Stevens.

Recommended elective for juniors in forestry. Elective for others with approval of the instructor. 2 lec.; 1 lab.; 3 cr.

15, 16. Thesis. Work to be arranged according to the needs of individual students. Mr. Woodward, Mr. Stevens.

Prereq.: Forestry 5, 6; 7, 8; and 9, 10. Required of certain juniors and seniors in forestry. 2 lec.; 2 or 3 cr.

17. National Forest Administration. The principles and methods employed in the national forests. Mr. Woodward.

Prereq.: Forestry 5, 6; 7, 8; and 9, 10. Recommended elective for seniors. 3 lec.; 3 cr.

19, 20. Forest Management. Management of woodlots and large forest tracts for the purpose of gaining the largest immediate and future returns. Preparation of working plans to coördinate protection, improvement, and regeneration. Mr. Woodward.

Prereq.: Forestry 5, 6; 7, 8; 9, 10; 11, 12. Required of seniors in forestry. 2 lec.; 2 lab.; 4 cr.

21. Practical Fish and Game Management. Given only at summer camp. Projects are worked out on the university forest at Passaconaway, N. H., and on a near-by game management area conducted by the United States Forest service. Mr. Stevens.

Elective for juniors in forestry. Prereq.: Forestry 9 and 14. 15 hours per week for 8 weeks. 3 cr.

21.5. Practical Fish and Game Management. A course similar to the preceding, but more extensive in scope, given under the direction of a representative from the New Hampshire Fish and Game department, assisted by other authorities.

Elective for any student, not a forestry junior, who presents evidence of satisfactory training. 45 hours per week for 8 weeks. 8 cr.

22. Timber Survey. Given only at summer camp. Investigation of a large block of timberland on the White Mountain national forest. The student prepares a detailed timber survey report and a topographic map of the area. Mr. Stevens, Mr. Swain.

Required of juniors in forestry. Prereq.: Forestry 8, 9, 10 and C. E. 7, 8. 30 hours per week for 8 weeks. 6 cr.

52. History of Forestry. The history of forestry, its development and present status in different countries; the work of the Federal government and its management of the national forests; state forest policies; the lumber industry in the United States. Mr. Woodward.

Required of certain seniors in forestry. Elective for others with approval of the instructor. 3 lec.; 3 cr.

GEOLOGY

George W. White, *Professor;* T. Ralph Meyers, *Assistant Professor;* Donald H. Chapman, *Assistant Professor;* Glen W. Stewart, *Assistant.*

The geology department, located on the second floor of Conant hall, offers courses in the principles of geology, structural and dynamic geology, physiography, mineralogy, economic geology, paleontology, geography and meteorology.

The courses in geology are designed to give the student a general

insight into the materials, structure, and history of the earth upon which he lives. They are intended for the student with broad general interests, who wishes some insight into earth science, as well as for the student who is looking forward to professional or graduate work in geology. The courses are non-technical, in the sense that they do not fit a student to enter the career of professional geology without further training. The lectures in these courses are supplemented by laboratory exercises and field trips.

Two major programs are suggested. The first is for the student who is seeking a broad cultural training, and should include principles of geology, chemistry, and any four courses in geology for major work. The second, or pre-professional, program includes, besides geology courses, certain other courses which the student will find desirable as a prerequisite for graduate or professional work. Courses which should be included in the pre-professional program are principles of geology, physiographic and structural geology, mineralogy, economic geology, paleontology, field problems, inorganic chemistry, physics, surveying, engineering drawing (M.E. 1, 2), mathematics, and German.

The working equipment of the department includes numerous topographic and geologic maps, and a fairly complete collection of minerals, rocks and fossils. Microscopes are available for problem work in mineralogy, petrology, and paleontology. The departmental museum displays a wide variety of geological specimens and contains the Hitchcock collection, the Clough collection, and a portion of the Exeter Historical Society collection.

Few areas present such a wide variety of geological phenomena as the country in and about Durham. Features such as mountain and continental glaciation, marine erosion and deposition, vulcanism, orogeny and metamorphism are well shown.

1, 2. Principles of Geology. The earth and its history. A consideration of the forces that have operated to produce land forms and structures, and a discussion of the materials of the earth's crust. The interpretation of past geologic events, and their effect on the development of life forms. Laboratory study of various land forms of the United States by means of maps; of common minerals and rocks of the earth's crust; and of the more common fossils. Occasional field trips to nearby points of geologic interest. Mr. White, Mr. Meyers, Mr. Chapman, and Mr. Stewart.

Prereq.: 1 prerequisite for 2. Freshman and sophomore course. 3 lec. or rec.; 1 lab.; 4 cr.

3. Geography of the World. The earth as a planet and the processes which are at work modifying the appearance of its surface. The continents one by one, with emphasis placed on their physical aspects. The climates of the world. Mr. Chapman.

This course cannot be used to satisfy science requirements.
Open to all students. 3 lec. or rec.; 3 cr.

4. Geography of North America. The North American continent and its physical aspects. The weather and climate of the continent. The countries, treated regionally. Intensive study of the physical geography of New England. Mr. Chapman.

This course cannot be used to satisfy science requirements.
Prereq.: Geology 3, or special permission. Open to all students. 3 lec. or rec.; 3 cr.

8. Elementary Meteorology. The interpretation of atmospheric phenomena: the earth as a planet, the heating and circulation of the atmosphere, the seasons, and the nature and movement of the air masses which influence the weather of North America and particularly New England. Practical rules and methods of weather forecasting. Mr. Chapman.

Elective for all students. 2 lec. or rec.; 2 cr. (Formerly given as meteorology 2.)

11. Physiography. The forces producing the present aspect of the land surface, particularly that of New England. Special emphasis on the work of running water, glaciers, and marine agents. Field trips during the fall season. Mr. Chapman.

Prereq.: Geology 2. Sophomore course. 3 lec. or rec.; 1 lab.; 4 cr.

12. Structural Geology. An advanced study of the structures of the earth's crust and of the dynamics of their formation. Mountain systems, metamorphism, and igneous structures, and theories of earth origin. Mr. White.

Prereq.: One course in geology. Sophomore course. 3 lec. or rec.; 1 lab.; 4 cr.

51, 52. Mineralogy. The minerals that make up the earth's crust: crystals; minerals and their determination by means of physical characteristics; and the aggregation of minerals to form rocks. Mr. White.

Prereq.: One course in geology and one course in chemistry. 51 prerequisite for 52. 2 lec. or rec.; 1 lab.; 3 cr.

53, 54. Economic Geology. First semester: the types of coal and their occurrence in the United States; petroleum, the structures in which it is found, and the distribution and geology of oil fields, especially in the United States; cement materials, building stones and related materials. Second semester: the metals, their ores, and the geology of important ore deposits. Mr. Meyers.

Prereq.: One year's work in geology. 3 lec. or rec.; 3 cr. (Given in alternate years; not offered in 1939–40.)

55, 56. Paleontology. The history, development and morphology of the various groups of animals and, to a lesser extent, plants, as recorded by fossils found in the rocks of the earth's crust. Mr. Meyers.

Prereq.: One year's work in geology or zoölogy. 55 prerequisite for 56. 2 lec. or rec.; 1 lab.; 3 cr. (Given in alternate years; offered in 1939–40.)

57, 58. Geologic Problems. Special problems by means of conferences, assigned readings and field work, fitted to individual needs. Mr. White, Mr. Meyers, and Mr. Chapman.

Prereq.: Permission of the instructor. Credits to be arranged.

71. Human Geography. (See page 191.)

72. Geography of North America. (See page 191.)

SERVICE COURSE

7, (7). General Geology. A general introductory course in physical geology. The structures and materials of the earth's crust and the forces which have produced and altered them. Mr. Meyers.

Required of freshmen in chemistry, and sophomores in civil engineering. Elective for other students in technology and for students in agriculture. Open to liberal arts students by permission only. 3 lec. or rec.; 3 cr.

GOVERNMENT

Thorsten Kalijarvi, *Professor;* Lashley G. Harvey, *Assistant Professor;* Irving R. Hobby, *Instructor.*

Courses in this department aim at giving the student a foundation of political science which should not only serve the purpose of general culture, but also prepare for more intensive work in fields of specialized study, such as law, teaching, politics, government service, and social work. Students are urged to supplement work in government with other courses especially English, economics, history and sociology.

The Bureau of Government Research

The university is constantly receiving from the various governmental units in New Hampshire inquiries for information about governmental problems in this and other states and requests for technical advice on administrative problems. To meet these demands and to extend the service of the university more effectively, a Bureau of Government Research has been established. It acts as a clearinghouse for inquiries on public administration made by governments on the various levels. It also directs the university instruction in public administration and the interne and in-service training. Its activities may be classified as instruction, research and service.

1, 2. Citizenship. Present-day society; its political and social institutions; the development of an independent and informed attitude on vital political questions; problems of political expression, public opinion, the history, membership, structure and aims of organizations exerting political pressure, nominations and elections, political democracy, and the meaning of the state. Tolerance and the scientific approach toward views differing from the student's own will be stressed. First semester:

man in his political environment, the principles which obtain therein, and the ways in which man is politically conditioned by physical, economic, and social forces. Second semester: current political situations and problems. Mr. Kalijarvi and Mr. Hobby.

3 lec. or rec.; 3 cr.

3, 4. American Government. The work and organization of federal, state and local government; political parties in the United States; the functional relations between the several branches of government, and between political organizations and governmental policies. Mr. Harvey and Mr. Hobby.

Prereq.: 3 prerequisite for 4. Open to sophomores, juniors, and seniors. 3 lec. or rec.; 3 cr.

5, 6. European Governments. Their character, form and political practices; contemporary movements and developments; a comparison of the organs of governments as observed in action and evaluated in theory. Mr. Hobby.

Open to sophomores, juniors, and seniors. 3 lec. or rec.; 3 cr.

7, 8. International Law. The law governing the relations of states. Discussions supplemented by preparation of hypothetical cases. Mr. Kalijarvi.

Prereq.: One semester's work in government. 7 prerequisite for 8. Junior course. 3 lec. or rec.; 3 cr.

51. Constitutional Law. The case study of the constitutional development of the United States in terms of supreme, federal and state court decisions. Mr. Kalijarvi.

Prereq.: One year's work in government. Junior course. 3 lec. or rec.; 3 cr.

52. Introduction to Jurisprudence. Generalized principles of law and legal institutions. The law as an institution of social and political control. Mr. Kalijarvi.

Prereq.: Government 7 or 8 or 51. 3 lec. or rec.; 3 cr. (Given in alternate years; offered in 1939–40.)

53, 54. Political Theory. A reading course in the classics of political thought: Plato, Aristotle, Machiavelli, Hobbes, Locke, Rousseau, Burke, Paine, Adam Smith, Ricardo, Bentham, Marx, and others. Analysis of the political philosophy of the several 19th century schools. A philosophical approach to modern political problems. Mr. Hobby.

Prereq.: Two years' work in government. Senior course. 3 lec. or rec.; 3 cr.

55, 56. International Relations and World Government. The forms of international organizations and world politics. The rise of the modern nations and their relation to each other. The international world in which we live. Mr. Kalijarvi.

Prereq.: Two years' work in government. Open to seniors majoring in history and economics. 3 lec. or rec.; 3 cr.

58. PUBLIC ADMINISTRATION. The administration of modern states: administrative law; public relations; personnel; financial administration; governmental reporting; staff functions; public health; welfare; judicial administration; conservation of natural resources; government in business; government promotion of commerce and industry; and the construction of public works. Mr. Harvey.

Prereq.: Government 3, 4 or open to juniors and seniors who are taking Government 3, 4. 3 lec. or 3 rec.; 3 cr. (Given in alternate years; not offered in 1939–40.)

59. THE GOVERNMENT OF THE STATE OF NEW HAMPSHIRE. (See page 191.)

60. THE CONTEMPORARY AMERICAN POLITICAL SCENE. (See page 192.)

63, 64. SEMINAR. Papers on assigned topics, and reports under the guidance of the department head. Mr. Kalijarvi.

Prereq.: 63 prerequisite for 64. For majors who have completed two years' work in government and for graduate students in the social studies. (Formerly offered as 9, 10.)

11, (11). UNDERGRADUATE INTERNESHIPS. A limited number of upperclassmen will be appointed each semester, irrespective of their major departments, to serve in some department of the state or local government. The work will be in charge of the department to which the student is appointed, and will be closely supervised by one of the University instructors. Details arranged individually in each case. Mr. Harvey.

Prereq.: The background work for the interneships to be filled, preferably for substantial work in government, economics, accounting and sociology. For juniors and seniors. Not to exceed 16 credits.

HISTORY

DONALD C. BABCOCK, *Professor;* HERBERT F. RUDD, *Professor;* ARTHUR W. JONES, *Assistant Professor;* ALLAN B. PARTRIDGE, *Assistant Professor;* PHILIP M. MARSTON, *Assistant Professor;* WILLIAM YALE, *Assistant Professor;* GIBSON R. JOHNSON, *Assistant Professor;* EDNA DICKEY, *Assistant*

In these courses an important place is given to historical reading carried on in the reference room. Often a considerable part of the work is written.

The statements below as to prerequisites, etc., are for liberal arts students. Agriculture and technology students should consult the head of the department.

Any department in the college of liberal arts, except geology, home economics, physical education for women, and zoölogy, may be considered as a related department. Students majoring in history are required to take before graduation any four of the following courses: 55, 56, 33, 34, 67, 68. Half-year courses may be taken to meet this requirement.

COURSES FOR FRESHMEN

The following subject constitutes a basic course, required of all students in the College of Liberal Arts.

1, 2. Introduction to Contemporary Civilization. Designed to provide a background of appreciation of the cultural heritage from the past, recognition of historical allusions in literature and conversation, and knowledge of the general sequence of historic events. Prehistoric and historic social evolution. The historic explanation of modern life and an appreciation of the problems of contemporary society. Messrs. Babcock, Marston, Johnson, Yale, Partridge, Jones, Rudd.

Prereq.: 1 prerequisite for 2. 4 lec. or rec.; 4 cr.

Modern European History. (See History 19, 20.)

COURSES FOR UPPERCLASSMEN

GROUP I. ANCIENT AND MEDIEVAL

This group includes many of the customary well established courses in history. Students electing history courses with the general idea of rounding out their knowledge should include a selection from this group. History majors are expected to do a part of their work in it.

11. The Ancient Orient. "Pre-historic" culture in the Near East: a consideration of the contributions of the many peoples and empires, from the Persian highlands to Egypt and the Aegean, in the making of the civilization handed on to the Mediterranean and western world. Mr. Partridge.

Elective for sophomores, juniors, and seniors. 3 lec. or rec.; 3 cr. (Given in alternate years; offered in 1939–40.)

12. History of Greece. The deep-lying elements of western civilization as developed by Greek thought and action. Hellenic culture and its influence, including adequate attention to the period after the death of Alexander the Great. Mr. Partridge.

Elective for sophomores, juniors, and seniors. 3 lec. or rec.; 3 cr. (Given in alternate years; offered in 1939–40.)

13, 14. History of Rome. The great completion and integration of ancient Mediterranean civilization under the headship of Rome. First semester: the preliterary foundations and legendary origins, the transition to republican life and institutions, and territorial expansion to the first century B.C. Second semester: the transition from republic to

principate, and imperial and world affairs to the time of Justinian in 565. Mr. Partridge.

Elective for sophomores, juniors, and seniors. 3 lec. or rec.; 3 cr. (Given in alternate years; not offered in 1939–40.)

15, 16. MEDIEVAL HISTORY. First semester: the pageant of the Middle Ages from the period of the barbarian invasions to the first crusade. Second semester: to the 14th century. Designed: (1) to recapture the unique charm and social pattern of the Middle Ages, and (2) to interpret them as the source of modern times. Mr. Jones.

Prereq.: 15 prerequisite for 16. Elective for sophomores, juniors, and seniors. 3 lec. or rec.; 3 cr. (Given in alternate years; offered in 1939–40.)

17, 18. THE RENAISSANCE PERIOD. The period when medieval things were both being consummated and fading away, and when a recovery of ancient factors in culture mingled with modern forces. The Renaissance as an artistic and broadly cultural revival, and as a forward movement introducing the modern period. In this and in the preceding course, considerable pictorial material is used. Mr. Jones.

Prereq.: 17 prerequisite for 18. Elective for sophomores, juniors, and seniors. 3 lec. or rec.; 3 cr. (Given in alternate years; not offered in 1939–40.)

ENGLISH HISTORY. (See History 21, 22.)

FAR EASTERN HISTORY. (See History 71, 72.)

GROUP II. MODERN

This group is planned in recognition of the practical importance and large place assigned by common practice to modern, recent and present day aspects of history.

19, 20. MODERN EUROPEAN HISTORY. Studies of: (1) That most important phenomenon, the modern national state; (2) Western civilization as it reached a peak in Europe; (3) European expansion and world leadership, from the late 15th to the early 20th century. Eastern Europe, Asia, and Africa are referred to as backgrounds of the colonial movement. Because of its general importance, the course is open to all students; nevertheless, it is better, if possible, to study some of the earlier periods first. Mr. Jones.

Electives for sophomores, juniors, and seniors. Freshmen may elect this course, but only in a designated section, and if as many as five enroll. 3 lec. or rec.; 3 cr.

21, 22. HISTORY OF ENGLAND. The history of the British Isles from earliest times to the present. First semester: the Roman, Anglo-Saxon, Norman, late medieval and modern period through the reign of Queen Mary Tudor (1558). Second semester: the Age of Elizabeth to the contemporary history of the British commonwealth of nations. A parallel

to English literature, and a background to American political history. Mr. Partridge.

Elective for sophomores, juniors, and seniors. 3 lec. or rec.; 3 cr.

61, 62. The World War. The 19th and 20th century background and causes of the world war; the military, political, economic and social developments during the course of the war; the Paris peace conference. Mr. Yale.

Elective for juniors and seniors by permission of the instructor. 3 lec. or rec.; 3 cr.

63, 64. Recent World History. The post-war world, exclusive, for the most part, of American affairs, and stressing historical developments in Europe, the Near and Far East. Mr. Yale.

Elective for juniors and seniors by permission of the instructor. 3 lec. or rec.; 3 cr.

31, 32. History of the Far East. Asiatic and Pacific affairs, having recently become of greater import to the Occident, are here studied with regard to their emergence politically and economically. The history of Japan, China, India and other regions reviewed and correlated with European and American history. The long history of the Orient from earliest ages as background. The philosophy, culture and major movements in thought. Mr. Rudd.

Elective for sophomores, juniors, and seniors. 3 lec. or rec.; 3 cr. (Not open to students who have had philosophy 85, 86.)

GROUP III. AMERICAN HISTORY

This group addresses itself to (1) the responsibility of the American student to know his own country; (2) the widespread and well established interest in New England's part in our history; (3) the developing Pan-American world; (4) some special aspects of American life and of 19th and 20th century American culture.

51, 52. Colonial and Revolutionary American History. Colonial beginnings in America, national rivalries, the English colonies, the Revolution, and our national life to 1789. Early forms of Americanism in the making. Mr. Marston.

Prereq.: 51 prerequisite for 52. Elective for juniors and seniors. 3 lec. or rec.; 3 cr. (Given in alternate years; offered in 1939–40.) (Formerly offered as history 5, 6.)

7, 8. The United States from 1790 to 1920. The administration of Washington, the great forces of nationalism, expansion, democracy and sectionalism followed through the period of the world war. Reference to such aspects of our national life as literary, artistic, scientific and everyday life-ways, as well as the more usual political and economic events. Mr. Babcock.

Prereq.: 7 prerequisite for 8. Elective for sophomores, juniors, and seniors. 3 lec., 1 quiz period; 4 cr.

9, 10. Latin-American History. The development and influence of Spanish and Portuguese culture as a wide-spread world force; the history of the Latin-American peoples; the relationship of Latin-America and North America, particularly in view of recent growth in friendly and diplomatic relations. Mr. Partridge.

Elective for sophomores, juniors, and seniors. 3 lec. or rec.; 3 cr.

59, 60. Social and Cultural History of New England. From the settlements to the present. The material and intellectual aspects peculiar to New England's social and cultural life. The viewpoint is partly that of the antiquarian. Source materials figure considerably. It is assumed that the student is familiar with the general history of New England. Mr. Marston.

Prereq.: 59 prerequisite for 60. Elective for juniors and seniors who have taken 5 and 6 or are taking 51 and 52, or 7 and 8. 3 lec. or rec.; 3 cr. (Given in alternate years; not offered in 1939–40.)

65, 66. Recent and Contemporary American History. Developments in American life since the world war. The reaction of our individualism in the presence of new world ideologies, and the extent of its modification. A close range observation of social history in the making. Current newspapers and periodicals will be used. Mr. Babcock.

Elective for juniors and seniors. 2 lec., rec., or discussions; 2 cr.

GROUP IV. HISTORY FROM AN EDUCATIONAL VIEWPOINT

53. The History of Civilization. Designed to show the close connections between the historical development of Western society in both Europe and North America and their educational institutions. The development of education from the ancient Orient, Greece, Rome, the Middle Ages, to modern times. Modern educational institutions in Europe and the United States connected with 19th and 20th century developments. Mr. Yale.

Elective for juniors and seniors. 3 lec. or rec.; 3 cr.

67, 68. Historical Geography and Biography. Schools of thought in history are likely to be either environmental or personal; that is, either deterministic or voluntaristic. This course devotes a semester to each way of thinking, reviewed in the light of concrete data. New applications and methods of study and teaching. First semester: the use of maps, and map-making for classrooms. Second semester: the study of representative, as distinguished from great, persons. Mr. Babcock.

Elective for juniors and seniors. 2 lec. or discussions; 2 cr. (Given in alternate years; not offered in 1939–40.)

History-Education (hist-ed) 91. Problems in the Teaching of High School History. The purposes and objectives of teaching high school history; selection and organization of teaching material; teaching and testing techniques which may be advantageously used in teaching high school history; experiments in studying and teaching recent American history.

Open to students who have satisfactorily completed History 7, 8, Government 1, 2, Economics 1, 2 or 3, 4, and Education 61. 3 class meetings; 2 cr. For teachers primarily in service, one 2-hour rec.; 2 cr. (See page 191.)

History-Education (hist-ed) 92. Practicum in the Teaching of History in High Schools. (See page 191.)

group v. philosophical

In the following group appear the offerings of the university in (1) philosophy, (2) ethics, (3) religious history, (4) philosophical aspects of history. The purpose throughout is the understanding of existence as an integrated whole.

Philosophy 81, 82. Historical Introduction to Philosophy. Two objectives are approached simultaneously: (1) an understanding of the succession of philosophic systems and the great philosophers who projected them, from the beginning of Greek philosophy to the present; (2) a systematic survey of the persistent problems of life as philosophers have seen them, and of the types of philosophic world-view that have contested for acceptance. Mr. Rudd.

Elective for juniors and seniors. 3 lec. or rec.; 3 cr. (Given in alternate years; offered in 1939–40.) (Not open to students who have had philosophy 49 or 81.)

Philosophy 83, 84. The Evolution of Social Values and Ethical Judgments. The development of biological, psychological and social capacities which are essential to the appearance of any community values; the moral significance of early group life; the economic and cultural factors which shape value systems; the divergent patterns of moral sentiment in advanced civilizations; possible standards of judging folkways and ethical assumptions. Second semester: an analysis of the factors which bring personal and social crises in the present generation; and the ideals, principles, and programs which may successfully meet these problems. Mr. Rudd.

Elective for juniors and seniors. 3 lec. or rec.; 3 cr. (Given in alternate years; not offered in 1939–40.)

Philosophy 50. The Art of Thinking: Logic. The many factors which determine the quality of human thinking as trustworthy or untrustworthy; the aids to better thinking practices. Mr. Rudd.

Elective for juniors and seniors. 3 lec. or rec.; 3 cr.

23, 24. Historical Origins and Development of Christianity. The life, literature, religion and social development of the Old Testament

as a culture background. An investigation of the historic data existing about the life, character and teaching of Jesus. The growth and expansion of the Christian movement. Designed to furnish students an opportunity to evaluate their own religious heritage in the light of contemporary thought, and to make special study of particular intellectual problems. Mr. Johnson.

Open to sophomores, juniors, and seniors. 3 lec. or discussions; 3 cr. (Given in alternate years; not offered in 1939–40.)

25, 26. HISTORY OF RELIGIONS. Religion as an historic force in society. The nature of religion, its origins, and early development treated in connection with primitive social history. A study of the principal religions of the world, special attention being given to Hinduism, Buddhism, Zoroastrianism, Confucianism and Mohammedanism. The history, literature, and philosophy of the oriental civilizations and cultures as a background. Mr. Johnson.

Open to sophomores, juniors, and seniors. 3 lec. or discussions; 3 cr. (Given in alternate years; offered in 1939–40.)

55, 56. THE PHILOSOPHY OF HISTORY. (1) Chronology and periodizing, and teaching methods having to do with dates. (2) Culture-history, including the historical side of everyday things. (3) The philosophy-of-history proper, or a study of some of the ways in which thoughtful persons have interpreted the nature of history as a whole. Mr. Babcock.

Elective for juniors and seniors. 2 lec. or discussions; 2 cr. (Given in alternate years; offered in 1939–40.)

33, 34. HISTORIOGRAPHY. The lives and writings of some leading historians from earliest times to the present, and their contributions to scope, method, viewpoint and literary achievement. Mr. Partridge.

Elective for sophomores, juniors, and seniors. 2 lec. or rec.; 2 cr. (Given in alternate years; not offered in 1939–40.) (Formerly offered as 57, 58.)

HOME ECONOMICS

HELEN F. MCLAUGHLIN, *Professor;* IRMA G. BOWEN, *Assistant Professor;* LILLIAN B. HUDON, *Instructor;* MARION A. BAILEY, *Instructor;* MARGARET KARR, *Instructor.*

Students majoring in home economics must take home economics 1 and 2 before graduation.

1, 2. HOMEMAKING. The various phases of homemaking and the vocational opportunities open to women. Mrs. McLaughlin.

Basic course for students majoring in home economics. Elective for other students. 3 lec. or rec.; 3 cr.

CLOTHING AND TEXTILES

3, 4. CLOTHING SELECTION. The selection of suitable and becoming clothing. Textile materials from the point of view of the consumer. Care and renovation of clothing. Miss Bowen.

Prereq.: 3 prerequisite for 4. 3 lec. or rec.; 3 cr.

5, 6. CLOTHING CONSTRUCTION. Application of the principles of design and development of technique in garment construction. Miss Bowen.

Prereq.: 5 prerequisite for 6. 2 lab.; 2 cr.

7, 8. HISTORIC COSTUME AND DESIGN. Costume changes from the primitive to the present, and something of the historical events that influenced such changes. Adaptation of period costume to modern use. Miss Bowen.

First semester: 3 lec. or rec.; 3 cr. Second semester: 1 lec.; 2 lab.; 1–3 cr.

9, 10. APPLIED DESIGN. Handcrafts for a hobby or for use in camps and playgrounds. The craft cottage is open daily, making some choice in hours for work possible. Students retaining finished products pay for the cost of materials used. Miss Bowen.

1 lec. or rec.; 2 lab.; 1–3 cr.

11, 12. POTTERY. Design and construction. Laboratory practice in molding, casting, throwing, glazing and firing of household ware, architectural tiles, decorative ornament and figures. In coöperation with The League of New Hampshire Arts and Crafts. Miss Helen Phelps.

Elective for all students. 1 rec.; 2 lab.; 3 cr.

13, 14. POTTERY. A further study of design and construction, with special emphasis on decoration and the preparation and application of glazes. Miss Helen Phelps.

Prereq.: H. E. 11, 12. 1 rec.; 2 lab.; 3 cr.

FOOD AND NUTRITION

15, 16. FOODS. The nutritive values, healthful preservation and preparation, and the attractive and efficient serving of foods. A separate section is given for sophomores in hotel administration.

Prereq.: 15 prerequisite for 16. 1 lec.; 2 lab.; 3 cr.

17, 18. ADVANCED FOODS. Advanced problems concerning the selection and preparation of foods. Solution of individual experimental problems. First semester, experimental projects; second semester, tea room management.

Prereq.: H.E. 15, 16. 17 prerequisite for 18. First semester: 1 lec.; 1 lab.; 2 cr. Second semester: 2 lab.; 2 cr.

19. NUTRITION. Diet therapy; readings in the current literature of nutrition. Mrs. McLaughlin.

2–3 rec.; 2–3 cr. Institutional management students wishing to fulfill requirements of the American Dietetic Association should register for 3 cr.

20. DIETETICS. Application of the principles of human nutrition to varying physiological, social, and economic conditions. Mrs. McLaughlin.

2 lec.; 1 lab.; 3 cr.

21, 22. ELEMENTARY COOKERY. Practical preparation and serving of healthful and attractive meals. Elective for students not majoring in home economics.

2 labs.; 2 cr.

CHILD DEVELOPMENT

25, 26. CHILD DEVELOPMENT. The physical and mental development of the infant and child; care and training in the home. Miss Karr.

Prereq. or parallel requirement: education 11, or psychology 51. 2 lec. or discussions; laboratory work with children in the play group; reference reading; 3 cr.

27, (27). PROJECTS IN CHILD DEVELOPMENT. Principles of child guidance. Class discussions based upon the special interests of the students enrolled. Miss Karr.

Prereq.: H.E. 25 and 26. 2 lec. or discussions; laboratory in the play group; reference reading; 2–3 cr.

HOME MANAGEMENT

31, 32. HOME BUILDING AND FURNISHING. The evolution of American housing from the early settlements to the present. The selection of a site, the planning, decorating and furnishing of a modern home. Miss Bowen.

3 lec., rec. or conferences; 3 cr.

33, 34. HOME MANAGEMENT. First semester: principles involved in the care and management of the home. Second semester: problems involved in wise expenditure of family funds. Miss Karr.

3 lec.; 3 cr.

35, (35). HOME MANAGEMENT HOUSE. Practice in homemaking; planning, buying, preparation of meals; care of the house; efficient work habits; managerial and dietetic problems; nine weeks' residence in the home management house. Miss Karr.

Required of all vocational home economics majors; elective for other students by permission of the head of the department. Class limited to six. 3 cr.

INSTITUTIONAL MANAGEMENT

41. INSTITUTIONAL MANAGEMENT. The organization, equipment, and management of typical institutions; the buying, planning, prepar-

ing and serving of meals for large groups. Field trips to study equipment and management. Miss Hudon.

3 lec. or rec.; 3 cr.

43, 44. Institutional Practice. Practical experience in the kitchens and serving rooms of the university Commons. Miss Hudon.

Prereq.: 43 prerequisite for 44. 2 lab.; 2 cr.

46. Furniture and Textiles. Problems in the selection, care and use of furniture and textile materials for institutions. Members of home economics staff.

3 rec.; 3 cr.

48. Field Work in Institutional Practice and Extension. Eight to 10 weeks' residence and practical experience in an approved hospital or other institution, or an extension group, supplemented by readings and conferences. Mrs. McLaughlin and Extension staff.

4–6 cr.

HOME ECONOMICS EDUCATION

47, (47). Projects in Home Economics. Opportunity for students to work out projects supplementary to or in advance of other courses. Members of home economics staff.

Conferences and assignments; reference readings; 1–3 cr.

Home Economics-Education (he-ed) 91. Problems in the Teaching of High School Home Economics. Mrs. McLaughlin and other staff members.

3 lec. or rec.; 3 cr.

Home Economics-Education (he-ed) 94. Supervised Teaching in High School Home Economics. Mrs. McLaughlin.

12 weeks supervised teaching, 10 cr.

Home Economics Education (he-ed) 96. Seminar in the Teaching of High School Home Economics. Mrs. McLaughlin and other staff members.

Required of all students who have done supervised teaching. 4 weeks' intensive work following period of supervised teaching. 3 cr.

HORTICULTURE

J. Raymond Hepler, *Associate Professor;* L. Phelps Latimer, *Assistant Professor;* William W. Smith, *Assistant Professor;* James Macfarlane, *Instructor;* Henry S. Clapp, *Instructor.*

1. Harvesting and Marketing of Fruits. The handling of fruit crops, technicalities of fruit grading, agencies used and problems in storing, transporting and merchandising the crop, with laboratory practice in packing-house work.

Elective for any student. 2 lec.; 1 lab.; 3 cr.

2. Elementary Horticulture. Principles involved in the culture and propagation of horticultural plants. Mr. Smith.

Recommended elective for freshmen in agriculture. 2 lec.; 1 lab.; 3 cr.

3. Fruit Judging. The fruit characters and commercial characteristics of the leading varieties of fruits with special reference to those important in New England. Proficiency developed in recognizing varieties, determining causes of blemishes, and judging exhibition fruit. Mr. Latimer.

Elective for any student. 2 lab.; 2 cr.

13. Vegetable Forcing. Special vegetables as grown under glass. Emphasis on commercial phases, including varieties, culture and marketing. Each student to grow crops from seeding to maturity. Mr. Hepler.

Elective for any student. 2 lec.; 1 lab.; 3 cr.

14. Vegetable Gardening. Garden soils; testing and planting seeds, selection of varieties with reference to New Hampshire conditions; construction and management of hotbeds and cold frames; fertilization, cultivation and irrigation of the garden. Mr. Hepler.

Recommended elective for freshmen in agriculture. 2 lec.; 1 lab.; 3 cr.

26. Ornamental Woody Plants in Spring. Woody plants used for landscape purposes in northern New England as they appear in spring and summer. Mr. Clapp.

Required of horticulture students who do not elect horticulture 55 or 65. Elective for any other student. 1 lec.; 2 lab.; 3 cr.

27. Ornamental Woody Plants in Autumn. Woody plants for landscape use in northern New England as they appear in fall and early winter. Mr. Clapp.

Required of horticulture students who do not elect horticulture 55 or 65. Elective for other sophomores, juniors, or seniors. Preferably preceded by horticulture 26. 1 lec.; 2 lab.; 3 cr.

28. Elementary Landscape Gardening. Principles involved in ornamental and landscape gardening. Special attention given to beautifying the home surroundings. Mr. Clapp.

Elective for any student. 2 lec.; 1 lab.; 3 cr.

38. Floral Design. Instruction in the principles and theories of floral design and the use of flowers in the home, in halls and churches; actual practice in floral arrangement. Flowers used in laboratory become the property of the student. A laboratory fee of $3 is charged. Mr. Clapp.

Elective for any student. Registration by permission of the instructor. 1 lab.; 1 cr.

39. Greenhouse Construction and Management. Modern methods of greenhouse work and the more important plants grown commercially under glass. Varieties, culture, marketing and enemies of greenhouse plants. Practical work in propagating, potting, watering plants and ventilating greenhouses. The history and development of different types of greenhouses. Mr. Macfarlane.

Elective for any student. 2 lec.; 1 lab.; 3 cr.

40. Outdoor Floriculture. The art of growing flowers in the garden. The classification and culture of flowering annuals, herbaceous perennials, bulbs and bedding plants. Field trips. Mr. Macfarlane.

Elective for any student. 2 lec.; 1 lab.; 3 cr.

41, 42. Advanced Horticulture. Subject matter in any phase of horticulture (with laboratory practice if desirable) to meet the needs of special students or groups of students. Horticultural staff.

Elective for juniors and seniors. Students must obtain permission to register from the head of the department. Hours and credits to be arranged.

44. Advanced Pomology Laboratory. Seasonal practice work in fruit growing including pruning, grafting, planting and spraying; or similar practice in growing vegetables or ornamental plants. Two half-days each week in the orchard, garden or greenhouses, and one-hour meeting to discuss fundamental principles involved.

Prereq.: Horticulture 2, 14, 28 or 40. Required of all juniors in horticulture. 1 lec.; 4 lab.; 5 cr. (Note: By permission of the department, students who have had previous practical experience may substitute 5 semester credits of electives for this course.)

48, 49. Beekeeping. The life history and habits of honey bees and their adaptation to apiary conditions are given in the second semester, which should preferably precede the first. Laboratory work in the assembling and use of hives and hive fittings, and practice in handling bees. First semester: the principles and methods underlying the production of commercial crops of comb and extracted honey, with laboratory practice in the care and protection of bees during fall and winter, the extraction of honey and the preparation for market of extracted honey, comb honey, and wax. Mr. Hepler.

Elective for any student. 1 lec.; 1 lab.; 2 cr.

54. Advanced Pomology: Orchard and Small Fruits. Fundamental principles and experimental data and their application to orchard problems such as growth and rest period in fruit plants, water requirements, soil management, pruning, fruit bud formation, fruit setting, pollination, thinning, and winter injury. Mr. Latimer.

Prereq.: Botany 1, 2 and horticulture 2. Elective for juniors and seniors. 2 lec.; 2 cr.

55. Systematic Survey of Fruits. Important species of fruits and nuts of temperate regions and their botanical relationships. The his-

tory, distribution, and merits of each species, and the horticultural varieties developed from it. Mr. Latimer.

Prereq.: Botany 1, 2 and horticulture 2. Elective for juniors and seniors. Required of seniors in horticulture who have not taken horticulture 65 or horticulture 26 and 27. 2 lec.; 2 cr. (Given in alternate years; not offered in 1939–40.)

65. Advanced Vegetable Gardening. The management of commercial vegetable gardens. Systematic study of the species and varieties of the more important families of vegetables. Mr. Hepler.

Prereq.: Horticulture 14. Required of horticulture students who do not elect horticulture 55 or horticulture 26 and 27. Elective for juniors and seniors. 2 lec.; 1 lab.; 3 cr.

91, 92. Horticultural Seminar. A review of recent horticultural literature and methods of investigational work. Students required to prepare and present papers on selected topics. Horticultural staff.

Required of seniors in horticulture. Other students must obtain permission to enroll. 2 lec.; 2 cr.

94. Evolution and Improvement of Plants. Application of the principles of genetics to agricultural plant-breeding. Hybridization and selection as means of improving horticultural varieties.

Prereq.: Zoölogy 49. Elective for any student. 2 lec.; 2 cr. (Given in alternate years; not offered in 1939–40.)

HOTEL ADMINISTRATION

Raymond R. Starke, *Assistant Professor.*

The following courses in hotel administration are open to students in hotel administration, and to students majoring in other departments by permission of the instructor, provided such students have had the proper prerequisites.

1. Orientation. A brief treatment of the history and organization of the university followed by a study of the rules and requirements for students. Much time is given to the history of hospitality, particularly the development of the hotel business in the United States.

Required of freshmen in hotel administration. 2 lec. or rec.; 1 cr.

5. Hotel Operation. Fundamental problems of operation: the organization and work of the departments, control of income and expenditure, equipment, personnel, and the relation of the individual institution to the industry in general.

Required of juniors in hotel administration. 3 lec. or rec.; 3 cr.

7. Hotel Public Relations. The relations of the hotel with the public, either as prospective or present guests; sales promotion media and advertising.

Required of seniors in hotel administration. Open to others with permission of the instructor. 2 lec. or rec.; 2 cr.

8. Front Office Procedure. The layout of the hotel office, the members of the staff and their relation to other staffs of the hotel. Equipment, and procedures of keeping guest accounts.

Required of seniors in hotel administration. Open to others by permission of the instructor. 1 class discussion; 1 cr.

21, 22. Introductory Hotel Engineering. The application of selected topics of physical science to problems related to hotel buildings and their equipment.

Required of sophomores in hotel administration. Open to others by permission of the instructor. 3 lec. or rec.; 1 lab.; 4 cr.

40, 42, 44, 46. Lectures on Hotel Management. Delivered by representative and well known men in the hotel business and allied fields. All students in hotel administration should register for this course every year.

40 elective for freshmen. 42, 44, 46 required of sophomores, juniors, and seniors respectively. 1 lec. and discussion period of 2 hours; 1 cr.

LANGUAGES

Clifford S. Parker, *Professor;* John S. Walsh, *Associate Professor,* Julio Berzunza, *Assistant Professor;* Paul P. Grigaut, *Assistant Professor;* John A. Floyd, *Instructor;* James T. Schoolcraft, Jr., *Instructor;* Albert F. Buffington, *Instructor;* Lucille L. Lamoureux, *Graduate Assistant.*

Elementary courses in French, German, and Spanish are planned particularly to help students acquire a reading knowledge of the respective language and thus enable them (1) to pass the reading test described on page 122 of the catalog, and (2) to utilize the language as an asset in other fields of learning and along many vocational lines.

The advanced courses have two main objectives: (1) to prepare students to become teachers of French, German, Latin or Spanish in secondary schools; (2) to give all students a valuable acquaintance with the language, literature and civilization of foreign countries in ancient and modern times.

For special requirements expected of majors in languages, students should consult the head of the department.

All students are cordially invited to attend the meetings of the French, German and classical clubs.

FOREIGN LITERATURES IN TRANSLATIONS

(The following two courses are intended primarily for students who do not intend to major in the department of languages.)

LANGUAGES 1, 2. SURVEY OF GREEK AND ROMAN LITERATURE. The masterpieces of Greek and Roman literature in translations. The environments, ideals and personalities of the great writers of antiquity and their contributions to the modern world. A cultural course for the general student unprepared to read the original languages but desiring acquaintance with this important subject-matter. A background course for majors in such subjects as English, history, Latin, or one of the modern languages and literatures. Continued in languages 51, 52. Mr. Walsh.

3 rec.; 3 cr. (Formerly given as Latin 27, 28.)

LANGUAGES 51, 52. SURVEY OF MODERN EUROPEAN LITERATURE. The Renaissance, Classicism, Romanticism and Realism studied as international movements. Stress will be laid, not upon the details of each national literature, but upon the interdependence of the literatures of the various countries. Literature interpreted as a product of changing patterns of civilization and social ideas. Required reading in the original language or in translations. Conducted in English. Mr. Grigaut.

Prereq.: Junior, senior, or graduate standing. 3 rec.; 3 cr. (Formerly given as French 67, 68.)

FRENCH

(Freshmen will be assigned to French 1, French 3, or French 5, on the basis of their performance in the French placement examination in freshman week.)

1, 2. ELEMENTARY FRENCH. Elements of French grammar, reading of simple prose, oral practice, dictation. The course will be sectioned for those entering with credit and without credit in high school French. Mr. Floyd, Miss Lamoureux.

Prereq.: 1 prerequisite for 2. 5 rec.; 4 cr.

3, 4. INTERMEDIATE FRENCH. Reading and translation, review of grammar, oral practice, composition. Mr. Grigaut, Miss Lamoureux.

Prereq.: French 2 or its equivalent. 3 prerequisite for 4. 3 rec.; 3 cr.

5, 6. MASTERPIECES OF FRENCH LITERATURE. Prose and poetry of the 17th, 18th, and 19th centuries; history of French civilization; composition and oral practice. Mr. Parker, Mr. Grigaut.

Prereq.: French 4. 5 prerequisite for 6. 3 rec.; 3 cr.

11, 12. FRENCH CLASSICISM. The period from 1600 to 1750, tracing the rise and development of the classical ideal in French literature;

the masterpieces of the great writers of the age of Louis XIV; the decline and disintegration of classicism in the 18th century. Mr. Parker.

Prereq.: French 6. 11 prerequisite for 12. 3 rec.; 3 cr.

13, 14. French Composition and Conversation. The use of written and spoken French taught by careful attention to pronunciation, composition and grammar. Especially valuable for students who wish to teach French and conduct French clubs. Such students will have an opportunity to coöperate with the instructor in the preparation and presentation of French plays. This course should be taken by every student desiring to obtain departmental recommendation for the teaching of French. Enrollment limited to twenty students per section. Advance permission of instructor or head of department required. Mr. Floyd.

Prereq.: French 4 with grade of 75 or better; or French 6. 13 prerequisite for 14. 3 rec.; 3 cr.

53, 54. French Romanticism. The period from 1750 to 1850: J. J. Rousseau's work and influence; the important writers of the Romantic school; analysis of the intermingling of Romanticism and Realism in the work of Balzac. Mr. Parker.

Prereq.: French 12. 53 prerequisite for 54. 3 rec.; 3 cr.

57, 58. French Literature from 1850 to the Present. Realism and Naturalism in the novel and drama, the Parnassian and Symbolist schools in poetry, the psychological novels of Bourget, and the various schools and trends of the late 19th and early 20th centuries. Conducted largely in French. Mr. Grigaut.

Prereq.: French 12 or 54. 57 prerequisite for 58. 3 rec.; 3 cr.

61, 62. French Grammar. A systematic study of French grammar in all its phases from elementary to highly advanced. Intended primarily for those preparing to teach French. Mr. Floyd.

Prereq.: Permission of instructor or head of department. Permission will be granted only to juniors, seniors and graduate students. 61 prerequisite for 62. 3 rec.; 3 cr.

63, 64. French Literature and Civilization of the Middle Ages and the Renaissance. The various forms and masterpieces of French literature from the beginning to the year 1600, with consideration of their historical and social background. Recommended for seniors and graduate students. Mr. Parker.

Prereq.: French 12 or 54. 63 prerequisite for 64. 2 lec.; 2 cr.

71, 72. Studies in Modern French Literature. A detailed and comprehensive study of the work of several of the greatest French writers from 1600 to 1900. Choice of writers in a given year will depend upon the needs or tastes of students electing the course. Conducted largely in French. Mr. Grigaut.

Prereq.: Senior or graduate standing. 71 prerequisite for 72. 3 rec.; 3 cr. (Given in alternate years; not offered in 1939–40.)

FRENCH-EDUCATION (FR-ED) 91. PROBLEMS IN THE TEACHING OF FRENCH IN THE HIGH SCHOOL. The special objectives, methods, and problems of high school French. Open only to seniors and graduate students who are planning to teach. Visits to schools to observe the work of experienced teachers arranged. Students may be given opportunity to assist in the work of French 1, 2. Mr. Floyd.

Prereq.: Permission of head of department. 3 rec.; 3 cr.

92. ORAL FRENCH. Accuracy and facility in the use of oral French will be attempted through the study of phonetics and the use of dictation, conversation, the phonograph, the dictaphone and other devices. Mr. Floyd.

Prereq.: French 14 or French-education 91. 2 rec.; 2 cr.

GERMAN

1, 2. ELEMENTARY GERMAN. The fundamentals of German grammar as a necessary foundation for reading. Composition, conversation, dictation, memory work, and the reading of a large amount of simplified prose. Mr. Schoolcraft, Mr. Buffington.

3 rec.; 3 cr.

3, 4. GERMAN READING AND COMPOSITION. A continuation of elementary German given in two sections. Section 1 places main emphasis on the rapid reading of German to prepare students especially for courses in German literature and for the use of German in other academic fields, such as history and social science. Section 2 stresses composition and conversation to give students a practical command of the German language for use in business, travel, teaching, and advanced conversation courses. Mr. Buffington.

Prereq.: German 2 or two years of high school German. 3 prerequisite for 4. 3 rec.; 3 cr.

5, 6. SCIENTIFIC GERMAN. For pre-medical students and majors in physics, chemistry, geology, forestry, agriculture, and engineering. To facilitate the reading of German scientific treatises. Mr. Schoolcraft.

Prereq.: German 2 or two years of high school German. 5 prerequisite for 6. 3 rec.; 3 cr.

11, 12. GERMAN LITERATURE FROM 1750 TO THE END OF THE CLASSICAL PERIOD. Lectures, interpretations, collateral reading, and reports. The development of German literature during the epoch of the *Aufklärung* and the *Sturm und Drang* to the end of the classical period. Lessing, Goethe and Schiller chiefly studied. Mr. Schoolcraft.

Prereq.: German 4 or the equivalent. 11 prerequisite for 12. 3 class hours; 3 cr.

13, 14. GERMAN CONVERSATION AND COMPOSITION. Recommended for students who desire a fluent practical command of spoken and writ-

ten German. Class discussions conducted in German. Opportunity for informal conversation, for discussion in German of topics prepared in advance, and for free German composition. Mr. Buffington.

Prereq.: German 4. 13 prerequisite for 14. 3 rec.; 3 cr. (Given in alternate years; not offered in 1939–40.)

53, 54. GERMAN ROMANTICISM. The revival of the historical and imaginative Middle Ages in the first half of the nineteenth century. Mr. Schoolcraft.

Prereq.: Two years of college German or the equivalent. 53 prerequisite for 54. 3 class hours; 3 cr. (Given in alternate years; not offered in 1939–40.)

57, 58. MODERN GERMAN LITERATURE. The development of German literature from 1832 to the present, with special emphasis on the novel and drama. Authors considered are Grillparzer, Hebbel, Ludwig, Keller, Meyer, Wagner, Hauptmann, Sudermann, Thomas Mann, Rilke, George and Schnitzler. Mr. Buffington.

Prereq.: Two years of college German or the equivalent. 57 prerequisite for 58. 3 class hours; 3 cr. (Given in alternate years; not offered in 1939–40.)

63, 64. HISTORY OF GERMAN LITERATURE. Its development from pagan to modern times. Representative works read in and out of class. The history of German civilization is taken up parallel with the history of literature. Mr. Schoolcraft.

Prereq.: Two years of college German or the equivalent. 63 prerequisite for 64. 3 class hours; 3 cr. (Given in alternate years; not offered in 1939–40.)

GREEK

1, 2. ELEMENTARY GREEK. Grammar, composition, translation. Mr. Walsh.

Prereq.: Permission of the instructor. 1 prerequisite for 2. 3 rec.; 3 cr. (Given every third year; not offered in 1939–40.)

LATIN

3, 4. INTERMEDIATE LATIN. To improve the student's ability to read Latin prose and poetry. A concentrated review of grammar, vocabulary, and principles of language. Work on unseen passages and prepared lessons in prose authors and poets. Mr. Walsh.

Prereq.: Two years of high school Latin. 3 prerequisite for 4. 3 rec.; 3 cr. (Given in alternate years; offered in 1939–40 if there is sufficient demand.)

5, 6. LATIN POETRY. Selected poems of Catullus, Ovid, Phaedrus, Martial and the odes and epodes of Horace. Translations, lectures and study of Latin influence on English poetry. Mr. Walsh.

Prereq.: Latin 4, or three years of high school Latin. 5 prerequisite for 6. 3 rec.; 3 cr.

7, 8. LATIN PROSE AND COMEDY. The plays of Plautus and Terence, Livy's History (Books I and II), and Pliny's Letters studied for their value as mirrors of the life and history of Rome as well as for their literary value. Mr. Walsh.

Prereq.: Latin 4. 7 prerequisite for 8. 3 rec.; 3 cr.

51, 52. PHILOSOPHY AND SATIRE. Philosophy, religion, natural science and social theories of the Romans, as exemplified in the writings of Horace, Martial and Cicero. Mr. Walsh.

Prereq.: Latin 8. 51 prerequisite for 52. 3 rec.; 3 cr. (Given in alternate years; offered in 1939–40.)

55, 56. LITERATURE AND HISTORY. A comprehensive view of Latin literature of the Golden Age, particularly the works of Caesar, Cicero and Virgil. Literary value and historical content will be studied as well as such background of the history of Rome during the period as is necessary for the student or teacher of the classics. Mr. Walsh.

Prereq.: Latin 8. 55 prerequisite for 56. 3 rec.; 3 cr. (Given in alternate years; not offered in 1939–40.)

63, 64. LATIN COMPOSITION AND TEACHING METHODS. Translation of English narrative, beginning with the fundamentals of grammar and progressing to prose style and effective idiomatic expression. Open to those who have taken or are taking another course in college Latin and recommended for prospective teachers of Latin.

Prereq.: 63 prerequisite for 64. 3 rec.; 3 cr.

SPANISH

1, 2. ELEMENTARY SPANISH. Elements of Spanish grammar, reading of simple prose, oral practice, dictation. Mr. Berzunza, Mr. Floyd.

Prereq.: 1 prerequisite for 2. 3 rec.; 3 cr.

3, 4. MODERN SPANISH PROSE AND POETRY. Review of grammar, memorization, composition, oral practice and reading. Mr. Berzunza.

Prereq.: Spanish 2 or its equivalent. Freshmen who offer two or more units of Spanish for admission to college may take this course. 3 prerequisite for 4. 3 rec.; 3 cr.

7, 8. THE SPANISH NOVEL. Representative novelists of the modern period such as Fernán Caballero, Valera, Pérez, Galdós, Pardo Bazán and Palacio Valdés. In the latter part, Cervantes will be studied. Collateral reading, reports and lectures on the history of the novel. Mr. Berzunza.

Prereq.: Spanish 4. 7 prerequisite for 8. 3 rec.; 3 cr. (Given in alternate years; not offered in 1939–40.)

11, 12. SPANISH DRAMA. Dramas of Lope de Vega, Calderón, Echegaray, the Brothers Alvarez Quintero, Benavente and others. This course is carried on as far as possible in Spanish. Mr. Berzunza.

Prereq.: Spanish 4. 11 prerequisite for 12. 3 rec.; 3 cr. (Given in alternate years; offered in 1939–40.)

13, 14. Spanish Composition and Conversation. The use of written and spoken Spanish taught by careful attention to pronunciation, grammar and composition. Recommended for students who wish to teach Spanish and conduct Spanish clubs. Permission of instructor required before enrollment. Mr. Berzunza.

Prereq.: Spanish 4. 13 prerequisite for 14. 3 rec.; 3 cr.
(Not offered in 1939–40.)

MATHEMATICS

Hermon L. Slobin, *Professor;* George N. Bauer, *Professor;* Marvin R. Solt, *Assistant Professor;* Miltiades S. Demos, *Assistant Professor;* John W. Calkin, *Assistant Professor;* William L. Kichline, *Instructor;* Donald M. Perkins, *Instructor;* Samuel A. Stone, *Instructor;* Albert Furman, *Graduate Assistant.*

1. Algebra. A review of the fundamental principles of high school algebra and continuing with the subject matter of mathematics 5. Designed for students whose high school training does not fit them for mathematics 5. Mr. Slobin.

Prereq.: Two years of mathematics in high school including at least one year of algebra. 6 rec.; 4 cr.

2. Trigonometry. The theory and applications of plane trigonometry and the analytic geometry of the straight line and certain special curves. Mr. Slobin.

Prereq.: Mathematics 1, or its equivalent. 5 rec.; 4 cr.

3. Analytic Geometry. A course in analytic geometry equivalent to that part of mathematics 6 covering analytic geometry. Mr. Solt, Mr. Calkin.

Prereq.: Mathematics 2, or its equivalent. 3 rec.; 3 cr.

5, (5), 6. First Year Mathematics. Algebra, trigonometry and analytic geometry. Messrs. Slobin, Demos, Calkin, Kichline, Perkins and Stone.

Prereq.: See requirements of mathematics for admission to College of Technology. 6 rec.; 5 cr.

7, 8, (8). Calculus. Applications of differentiation and integration; special methods of integration; the definite integral, applications of the definite integral to geometry, physics, and mechanics; introduction to sequence and series. Messrs. Slobin, Solt, Demos, Calkin and Kichline.

Prereq.: Mathematics 3 or 6. 3 rec.; 3 cr.

10. Astronomy. A brief descriptive course. The earth as an astronomical body; the sun and the solar system; the constellations; the stars. Mr. Solt.

3 rec.; 3 cr.

20. Solid Geometry. Elements of solid geometry. Mr. Perkins, Mr. Calkin.

Prereq.: High school algebra and plane geometry. 2 rec.; 2 cr.

21, 22. Mathematics for Students of Agriculture. Elements of algebra, geometry and trigonometry. Messrs. Bauer, Solt, Calkin, and Stone.

3 rec.; 3 cr.

34. Mathematics of Finance. Simple and compound interest, discount, annuities, depreciation, evaluation of securities, building and loan associations, and elements of life insurance. Mr. Bauer, Mr. Kichline.

Prereq.: Two years of mathematics in high school including at least one year of algebra. 3 rec.; 3 cr.

41, 42. Introduction to Statistical Methods. Includes a review of mathematical principles which form the necessary background for a first course in statistics. Certain mathematical functions, logarithmic computations, the simpler elements of least squares, the derivation of mathematical formulas from numerical data, graphic representation of statistical data, frequency distributions, averages, measures of dispersion and a brief introduction to correlation and time series. Messrs. Bauer, Kichline, Perkins.

Prereq.: Two years of mathematics in high school including at least one year of algebra and one year of plane geometry. 3 rec.; 3 cr.

51, 52. Advanced Calculus, Differential Equations, Vector Analysis and Their Application to Engineering Problems. Messrs. Solt, Demos and Kichline.

Prereq.: Mathematics 8. 3 rec.; 3 cr.

53, 54. Economic and Social Statistics. A continuation of 41, 42 including a more thorough study of correlation, multiple and partial correlation, time series including trend and seasonal variation and cycles. Material selected to meet best the needs of advanced students in social science, economics and education and to throw light on statistical research methods used in these fields. Mr. Bauer.

Prereq.: Mathematics 41, 42. 3 rec.; 3 cr.

55, 56. Advanced Plane and Solid Analytical Geometry. Mr. Solt.

Prereq.: Mathematics 8. 3 rec.; 3 cr. (Given in 1939–40 and thereafter in alternate years.)

57. The History of Mathematics. Designed especially for those preparing to teach mathematics in high school. An historical background and an appreciation of the development of various fields of mathematics. Mr. Demos.

Prereq.: Mathematics 4, or 7. 3 rec.; 3 cr.

71, 72. Advanced Algebra. Matrix theory, including elementary divisors and invariant factors; linear transformations; quadratic bilinear, and Hermitian forms; invariants and covariants with geometric applications; and topics from the theory of equations, including symmetric functions, and groups of substitutions. Mr. Demos.

Prereq.: Mathematics 8. 3 rec.; 3 cr. (Given in alternate years. Not offered in 1939–40.)

Mathematics-Education (math-ed) 91. Problems in the Teaching of High School Mathematics. The aims and values of secondary school mathematics, the recommendations of the national committee on mathematics requirements, and the state board requirements; also, the subject-matter and the sequence in which it should be presented in both junior and senior high schools, and the various techniques used in teaching secondary school mathematics. Errors, testing program and remedial teaching. Lectures, assigned readings and discussions. Mr. Leavitt.

Prereq.: Mathematics 8 or 34 and 7. Students preparing to teach mathematics in high school should register for this course. 3 rec.; 3 cr.

MECHANICAL ENGINEERING

George W. Case, *Professor;* Edward L. Getchell, *Associate Professor;* Thomas J. Laton, *Assistant Professor;* Edward T. Donovan, *Assistant Professor;* E. Howard Stolworthy, *Assistant Professor;* Lyman J. Batchelder, *Instructor;* John C. Tonkin, *Instructor;* Elias O'Connell, *Instructor;* Albert G. Welch, *Instructor*

The department of mechanical engineering is located in DeMeritt hall. On the second and third floors are the advanced drawing and designing rooms. In addition to these drafting rooms there are two lecture rooms, and department offices. One of the lecture rooms is equipped with a motion picture machine and stereopticon lantern for illustrated lectures.

In the basement are located certain of the mechanical engineering laboratories, one of which is equipped with the apparatus for making analyses of flue gases, for calorimetric determinations of the heat values of solid and liquid fuels, and for conducting the usual studies in heat treatment of steel. Apparatus needed in determining the viscosity and flash points of lubricants as well as an oil testing machine for determining the lubricating and wearing qualities of lubricants is located in the automotive laboratory in the Shops. Materials testing machines of this department are located in the basement of Conant hall.

The main room of the DeMeritt laboratories is given over to the testing of steam, gas and hydraulic machinery as well as of air compressors, air conditioning, refrigeration and heat transfer apparatus.

The university heating plant has been designed to serve also as a steam laboratory for this department.

Aëronautical equipment and internal combustion engines are located in the automotive laboratory at the rear of the Shops.

The wood shop is well equipped with woodworking machinery.

The equipment of the machine shop is the type of machine tools used in an up-to-date commercial shop, and includes a large number of small tools, such as micrometers, calipers and gauges necessary for accurate work.

The forge shop is equipped with down-draft forges, steam hammer and all necessary small tools. Equipment for electric and acetylene welding is located in the forge shop.

1, 2. ENGINEERING DRAWING. The fundamentals of engineering drawing, including free-hand lettering, use of drawing instruments, a brief study of isometric drawing, and the solution of problems in engineering drawing by applying the principles of descriptive geometry. Messrs. Laton, Stolworthy and Welch.

1 required of all Technology freshmen. 2 required of civil, electrical and mechanical engineering freshmen. 2 lab.; 2 cr.

M.E. (1) MECHANICAL DRAWING. Work in lettering, the plotting and interpretation of charts and graphs, and the use of drawing instruments. Projections of machinery and simple construction problems.

Required of freshmen in hotel administration. Elective for others by permission of the instructor. 2 lab.; 2 cr.

3. MACHINE DRAWING. Application of the principles of engineering drawing to the drawing of machine parts. Various pictorial systems as an aid in sketching. Reproduction methods and modern drafting room organizations. Commercial drafting room methods are employed in sketching machine parts, drawing from sketches, and making tracings. Mr. Laton.

Prereq.: Mechanical engineering 1. Required of electrical and mechanical engineering sophomores. 2 lab.; 2 cr.

4. KINEMATICS. Motion in machine construction; belts and other flexible connectors; gears and gear teeth; wheels in trains; epicyclic trains; cams; instantaneous centers; linkwork, velocity and acceleration diagrams. Mr. Laton.

Prereq.: Mechanical engineering 1. Required of electrical and mechanical engineering sophomores. 2 rec.; 2 lab.; 3 cr.

5, 6. MECHANICAL LABORATORY. An over-all view of the more elementary features of mechanical engineering. Introduction to the equipment in the mechanical laboratory and the university power plant, and instruction in its use for studying problems found in mechanical engineering practice. Mr. Donovan.

Required of sophomores in mechanical engineering. 1 lab.; 1 cr.

7, 8. Mechanics. A study of forces and moment of forces; determination of stresses in trusses and cranes; centroids and center of gravity; rectilinear and curvilinear motion; translation and rotation of bodies; work, power and energy. The application of mechanics to the determination of stress and strain in rigid bodies. The study of thin walled cylinders; riveted joints; torsion; transverse loading of beams; deflection in beams of all kinds; study of columns; compound stresses as applied to design of machine parts. Work in the second semester to be paralleled by exercises in the materials laboratory. Mr. Getchell.

Prereq.: Mathematics 8. Required of juniors in mechanical engineering. 7: 4 rec.; 4 cr. 8: 3 rec.; 1 lab.; 4 cr.

9, 10. Mechanics. Similar to 7 and 8, but with those portions having application to the design of machine parts omitted. Mr. Getchell.

Prereq.: Mathematics 8. Required of juniors in civil and electrical engineering. 9: 3 rec.; 3 cr. 10: 3 rec.; 1 lab.; 4 cr.

12. Mechanics. Principles of Mechanics as applied to architectural work. Force systems, moments, equilibrium, trusses, center of gravity and moment of inertia; tension, compression and shear; riveted joints; strength and deflection of beams; columns; reinforced concrete. Mr. Getchell.

Required of sophomore architects. 4 rec.; 4 cr.

13. Manufacture of Iron and Steel. The location of ores and other raw materials entering into the manufacture of pig iron; the blast furnace and conversion of pig iron into wrought iron; Bessemer and open hearth steels, and the manufacture of steel by electrical methods. Course paralleled by a laboratory devoted to the identification and heat treatment of various types of steel. Mr. Getchell.

Required of seniors in mechanical engineering. 2 rec.; 1 lab.; 3 cr.

15, 16. Machine Design. Application of the principles of mechanics to the design of machine elements with the idea of manufacturing the parts in the most economical manner in the shops. General principles of design will be followed rather than the development of any particular system of procedure. Mr. Laton.

Prereq.: Mechanical engineering 8. Required of senior mechanical engineers. 1 rec.; 2 lab.; 3 cr.

21. Heat Power Engineering. The fundamental theory of engineering thermodynamics and its applications to steam power plant and internal combustion equipment. Mr. Welch.

Prereq.: Mathematics 7 and physics 8. Required of civil engineering juniors. 3 rec.; 3 cr.

22. Meteorology. Fundamental physical and thermodynamic laws and general structure of the atmosphere. Air mass theory and a

brief study of the technicalities underlying forecasting of atmospheric changes. Mr. Stolworthy.

Prereq.: Physics 7 or its equivalent. Elective for all students. 2 lec.; 1 lab. (two-thirds semester); 2 cr.

23, 24. THERMODYNAMICS. The fundamental laws of thermodynamics and their relation to the operation of mechanisms using gases and vapors as their working substances. Mr. Donovan.

Prereq.: Mathematics 7. Required of junior mechanical engineers. 3 rec.; 3 cr.

25, 26. HEAT POWER ENGINEERING. The laws of engineering thermodynamics and a consideration of steam power plant and internal combustion engine equipment. Mr. Donovan.

Prereq.: Mathematics 7. Required of junior electrical engineers. 25: 3 rec.; 3 cr. 26: 3 rec.; 1 lab.; 4 cr.

27. MECHANICAL LABORATORY. The apparatus and methods of testing power plant operation and equipment. Mr. Donovan and Mr. Welch.

Parallel requirement: Enrollment in mechanical engineering 25, 26. Required of junior electrical engineers. 2 lab.; 2 cr.

29, 30. MECHANICAL LABORATORY. Methods of investigating operation and testing of power plant equipment. Mr. Donovan and Mr. Welch.

Parallel requirement: Enrollment in mechanical engineering 23. Required of junior mechanical engineers. 29: 2 lab.; 2 cr. 30: 1 lab.; 1 cr.

32. MECHANICAL LABORATORY. Testing of steam and gas engines in accordance with A.S.M.E. power test codes. Mr. Donovan.

Prereq.: Mechanical engineering 30. Required of senior mechanical engineers. 2 lab.; 2 cr.

33, 34. POWER PLANTS. A study of the steam generating power plant dealing with its equipment and costs. Mr. Donovan.

Prereq.: Mechanical engineering 24. Required of senior mechanical engineers. 33: 2 rec.; 2 cr. 34: 1 rec.; 1 lab.; 2 cr.

35, 36. AUTOMOTIVE ENGINEERING. The internal combustion engine including its thermodynamics, carburetion, lubrication and vibration. Some features of the design of the principal moving parts of the automotive vehicle. Mr. Stolworthy.

Prereq.: Mechanical engineering 8 and 24. Alternate with aeronautics for seniors in mechanical engineering. 2 rec.; 1 lab.; 3 cr.

37. AERONAUTICS. Elementary aerodynamics and aircraft construction; the use of the wind tunnel. Mr. Stolworthy.

Prereq.: Mechanical engineering 8 and civil engineering 24. Alternate with automotive engineering for seniors in mechanical engineering. 2 rec.; 1 lab.; 3 cr.

38. METEOROLOGY AND NAVIGATION. Synoptic meteorology and the instruments and methods used in navigation of aircraft. Mr. Stolworthy.

Prereq.: Physics 7. 2 rec.; 1 lab.; 3 cr. Alternate with automotive engineering for seniors in mechanical engineering.

39. HEATING AND VENTILATING. Heat losses and ventilation requirements of buildings, and the design of specific heating and ventilating systems. Mr. Stolworthy.

Required of juniors in mechanical engineering. 2 lab.; 2 cr.

40. HEATING AND VENTILATING. Present methods of heating and ventilating buildings. Mr. Stolworthy.

Required of juniors in architecture and hotel management. 2 lab.; 2 cr.

45. CONTRACTS AND SPECIFICATIONS. Legal principles underlying engineering work, including contracts, negotiable instruments and specifications. Mr. Case.

Required of senior engineers. 3 rec.; 3 cr.

46. ENGINEERING ECONOMY. The principles which form the basis of engineering procedures for obtaining the highest ratio of utility to cost.

Required of senior engineers. 3 rec.; 3 cr.

47, 48. CONTRIBUTION OF ENGINEERS AND SCIENTISTS TO THE FIELD OF ENGINEERING. The personal characteristics and life work of engineers and scientists. Intended for engineering students who are disqualified from military science and physical education; less reading will be required if disqualified only from the former. Mr. Welch.

2 rec.; 2 cr.

49. THESIS. The thesis embodies research or commercial investigation. Equal emphasis upon composition and accuracy in subject matter.

Required of senior mechanical engineers. 1 rec.; 2 lab.; 2 cr.

A.S.M.E. 1, 2, 3, 4. STUDENT BRANCH OF AMERICAN SOCIETY OF MECHANICAL ENGINEERS. An organization of junior and senior students. Preparation and presentation of addresses on mechanical engineering topics by members, and criticism by instructor of delivery, subject matter and terms used.

Required of juniors and seniors in mechanical engineering. No credit.

EXTENSION COURSES*

17, 18. MECHANICS OF NAVAL ARCHITECTURE. Volumes, weights and displacements, metacenter and buoyancy, stability and wave theory. Strength of hull and component parts of a ship. Curves of loads, shearing moments and bending moments. Calculations of horse power necessary for propulsion and resistance of ships. Screw propulsion and propulsion by wind. Rolling of ships, turning of ships, launching calculations. Mr. Getchell.

Prereq.: Satisfactory evidence of preparation for the course and permission of instructor. 3 rec.; 3 cr.

19, 20. MARINE ENGINEERING. The design and arrangement of the auxiliaries, parts and equipment in the engine room of a ship. Stresses in parts, strength of parts and functional relationships. Mr. Donovan.

Prereq.: Satisfactory evidence of preparation for the course and permission of instructor. 3 rec.; 3 cr.

MECHANICAL ENGINEERING SHOP COURSES

S1, S2. ELEMENTARY SHOP PRACTICE. For shop work, freshmen in Technology are divided into three groups meeting simultaneously in wood shop, machine shop and forge shop. Wood shop: pattern making and elementary foundry practice. Machine shop: practice in the operation of engine lathes and other machine tools, where precise measurements are important; the machinability of metals in the preparation of test specimens for use in the course in strength of materials. Forge shop: the operations necessary in the forging and welding of iron and steel, in the hardening, tempering, and annealing of steel. These groups interchange at the end of each twelve week period, so that all three subjects are covered during the year. Messrs. Batchelder, Tonkin and O'Connell.

1 lec.; 2 lab.; 3 cr.

S3, (S3). WOOD WORK. Plain cabinet making and finishing; use of stain filler, varnish, shellac, enamels, etc. Mr. Batchelder.

Elective for liberal arts and teacher training students. 2 lab.; 2 cr.

S5, (S5). WOOD SHOP. Practice teaching under the supervision of the instructor in wood working. Mr. Batchelder.

For seniors in industrial teacher training and education. 2 lab.; 2 cr.

S6. WOOD SHOP. Advanced pattern making or advanced cabinet making. Mr. Batchelder.

Prereq.: Mechanical engineering S1 and S3. For seniors in mechanical and electrical engineering and education. 2 lab.; 2 cr.

* See page 157.

S12. Forge Shop. The forging of iron and steel. The operations of drawing, welding, upsetting, twisting, splitting and punching of iron; the hardening, tempering, and annealing of steel; and the case hardening of mild steel as adapted to agricultural work. Mr. O'Connell.

Elective for students in agricultural teacher training curriculum. 2 lab.; 2 cr.

S13, (S13). Forge Shop. Advanced work in forging, electric and acetylene welding, tempering, case hardening, tool dressing. Mr. O'Connell.

Prereq.: Mechanical engineering S1. For seniors in industrial teacher training curriculum. 2 lab.; 2 cr.

S17, (S17). Machine Shop. Continuation of work given in S1, S2. Mr. Tonkin.

Required of electrical and mechanical engineering sophomores. 2 lab.; 2 cr.

S19, S20. Machine Shop. Advanced work on the lathe, milling machine, planer, shaper and turret lathe, involving making of tools and special machinery and apparatus. Mr. Tonkin.

Prereq.: Mechanical engineering S 17. 2 lab.; 2 cr.

S21, (S21). Machine Shop. Manufacturing. The appreciation and measurement of skill, production methods, shop management and time study. Mr. Tonkin.

Prereq.: Mechanical engineering S20. 2 lab.; 2 cr.

S23. Farm Shop. A short course in general shop work to suit the individual needs of agricultural teacher preparation juniors. Adjusted to meet previous experience in shop work. Mr. Tonkin and Mr. O'Connell.

Limited to agricultural teacher preparation juniors. 2 lab.; 2 cr.

MILITARY SCIENCE AND TACTICS

Colonel Edwin K. Smith, *Coast Artillery Corps, Professor;* Major Donovan Swanton, *Infantry, Associate Professor;* Major George L. Prindle, *Infantry, Assistant Professor;* Major Samuel L. Buracker, *Infantry, Assistant Professor;* Major Edward G. Cowen, *Coast Artillery Corps, Assistant Professor;* Technical Sergeant Fred W. Wood, *Assistant;* Staff Sergeant Fred H. Brown, *Assistant.*

BASIC COURSE, INFANTRY

1, 2. Military Fundamentals. Organization of the army and infantry; military discipline, courtesy and customs of the service; military history and policy; National Defense act and the R.O.T.C.; military obligations of citizenship; the current international situation; military

sanitation and first aid; weapons; rifle marksmanship; map reading; leadership; drill and ceremonies.

No prereq.: Required of freshmen. 2 rec.; 1 drill; or 3 rec., according to season; 1½ cr.

3, 4. SECOND YEAR, BASIC. Military history and policy, weapons, scouting and patrolling, musketry, combat principles, leadership, drill and ceremonies.

Required of sophomores. 2 rec.; 1 drill; or 3 rec., according to season; 1½ cr.

ADVANCED COURSE, INFANTRY

5, 6. FIRST YEAR, ADVANCED. Weapons, aerial photograph reading and interpretation, combat training, estimate of the situation and combat orders, field fortification, leadership, drill and ceremonies.

Prereq.: 4. 3 rec.; 1 drill; or 4 rec., according to season; 3 cr.

7, 8. SECOND YEAR, ADVANCED. Military history and policy; company administration; military intelligence; signal communications; chemical warfare, defensive use of non-toxic agent; military law; combat principles, platoon, company and battalion; leadership; drill and ceremonies.

Prereq.: 6. 3 rec.; 1 drill; or 4 rec., according to season; 3 cr.

BASIC COURSE, COAST ARTILLERY

9, 10. MILITARY FUNDAMENTALS. Organization of the army and coast artillery; military discipline, courtesy and customs of the service; military history and policy; National Defense act and the R.O.T.C.; military obligations of citizenship; the current international situation; primary coast artillery instruction; rifle marksmanship; ammunition, weapons and material; military sanitation and first aid; leadership; drill and ceremonies.

No prereq.: Required of freshmen in coast artillery. 2 rec.; 1 drill; or 3 rec., according to season; 1½ cr.

11, 12. SECOND YEAR, BASIC. Fire control and position finding for seacoast artillery; characteristics of naval targets; fire control and position finding for antiaircraft artillery; identification of aircraft; leadership; drill and ceremonies.

Prereq.: 10. Required of sophomores in coast artillery. 2 rec.; 1 drill; or 3 rec., according to season; 1½ cr.

ADVANCED COURSE, COAST ARTILLERY

13, 14. FIRST YEAR, ADVANCED. Map and aerial photograph reading; combat orders; gunnery, seacoast and antiaircraft artillery; leadership; drill and ceremonies.

Prereq.: 12. 3 rec.; 1 drill; or 4 rec., according to season; 3 cr.

15, 16. Second Year, Advanced. Military history and policy; motor transportation; artillery tactics; artillery material, guns, carriages, mines and ammunition; military law; orientation, topographical operation required for artillery firing; field engineering; administration; leadership; drill and ceremonies.

Prereq.: 14. 3 rec.; 1 drill; or 4 rec., according to season; 3 cr.

Note.—Students following courses 1, 2; 3, 4; or 9, 10; 11, 12 above, who also elect to serve in the University band, will receive ½ credit additional per semester.

MUSIC

Robert W. Manton, *Associate Professor and Director;* Lewis C. Swain, *Instructor and Bandmaster.*

The aim of the instruction in the department of music is twofold: first, to teach music scientifically and technically, with a view to training musicians who shall be competent to teach and compose; second, to treat music historically and aesthetically as an element of liberal culture.

Closely related departments are languages (French and German), and English (English literature and appreciation of art).

It is recommended that students who intend to elect music as a major consult the head of the department as early in the freshman year as possible relative to the best disposition of the sequence of courses in the major. All students majoring in music are required to take the following subjects before graduation: Music 15, 16; 17; 19, 20; 21, 22; 23, 24; 25, 26.

For students who intend to take only one or two courses in music, for the cultivation of musical taste and general knowledge, music 15, 16, 17, or 19, and 20 are recommended as best adapted to this end.

Students interested in some particular musical organization, such as glee club or orchestra, are permitted to elect the work desired.

1, (1). University Band.

Prereq.: Ability to play some band instrument and satisfactory completion of basic course, R.O.T.C. Open to others with special permission of the professor of military science and tactics. 1½ cr.

3, (3). The Men's Glee Club.

Open to all undergraduates interested in choral singing who fulfill the requirements of a try-out. ½ cr.

5, (5). Advanced Choral Club (men).

Prereq.: Music 3 and participation in some extra-curricular work. 1 cr.

7, (7). The Women's Glee Club.

Open to all undergraduates interested in choral singing who fulfill the requirements of a try-out. ½ cr.

9, (9). Advanced Choral Club (women).

Prereq.: Music 7 and participation in some extra-curricular activity. 1 cr.

11, (11). The University Symphony Orchestra.

Open to all undergraduates interested in orchestral playing who can fulfill the requirements of a try-out. ½ cr.

13, (13). Advanced Orchestral Club.

Departmental class illustrations, string quartet, trio playing and the like. Prerequisite: Music 11 and participation in some extra-curricular work. 1 cr.

Note: In all the above activities the educational values will be strongly stressed. The principles of ensemble, solo work, tone production, diction and above all sound musicianship will be studied, and concerts prepared separately and in combination to enhance and vitalize the university life.

15, 16. The History of Music. The period from modern Greece up to the twentieth century. An intensive study of the actual systems, spirit and content of the music of the period rather than a brief résumé of biography and critical evaluations. (1) From plain song through Palestrina, Vittoria, etc., the secular music of the English madrigalists and the beginnings of instrumental music, opera and oratorio; (2) the seventeenth century and Johann Sebastian Bach; (3) the classicists to Schumann; (4) Schumann to Debussy. Mr. Manton.

Elective. 2 lec. or rec.; 2 cr.

17. Twentieth Century Music. A continuation of music 15 and 16, emphasizing the significant trends in modern music since 1900. The works of such contemporary composers as Debussy, Sibelius, Stravinsky, Ravel, Hindemith, Schoenberg, Delius, Vaughan-Williams, Holst, Walton, Griffes, and many others. The values, gains, losses and shifts of emphasis will be discussed and every attempt made to adjust the listener's ear to the new values. Mr. Manton.

Elective. 2 lec. or rec.; 2 cr.

19, 20. The Appreciation of Music. A study of the elements of music such as: melody, harmony, homophonic and polyphonic types constructive formulae, and the musical forms employed in composition, as an approach to intelligent listening. Comprehensive illustrations of the great musical literature with special attention to twentieth century music played and analyzed. Recommended to all who wish to become familiar with the art of music in its many phases. Mr. Manton.

Prereq.: 19 prerequisite for 20. 3 lec. or rec.; 2 cr.

21, 22. Harmony, The Grammar of Music. Fundamental principles of the craft of music. The different chords in their natural and combined relations: triads, seventh and ninth chords with their inversions and resolutions; cadences, chromatically altered chords, augmented

chords, suspensions; embellishing tones, modulation, melody writing and pedal point. Exercises on figured basses and the harmonization of given melodies and dictation. The ability to play some instrument will facilitate an understanding of the course. Mr. Manton.

Prereq.: 21 prerequisite for 22. 2 lec. or rec.; 2 cr.

23, 24. Advanced Harmony and Strict Counterpoint. Intended to supplement music 21 and 22, and to lay stress on the many significant innovations found in modern harmony; modal harmony and its relation to the appreciation of fifteenth and sixteenth century music; the five orders of two-part counterpoint. Mr. Manton.

Prereq.: Music 22. 23 prerequisite for 24. 2 lec. or rec.; 2 cr.

25, 26. Counterpoint and Elementary Composition. The writing of three and four-part counterpoint, double counterpoint, choral figuration and free imitation. Composition will include the detailed training relative to sentence formation, figure treatment, two-part and three-part forms, inventions, the variation forms, and the various rondo forms up to the sonata form. Mr. Manton.

Prereq.: Music 22 and 24. 25 prerequisite for 26. 3 lec. or rec.; 2 cr.

27, 28. Instrumentation. Designed to ground the student in the idiomatic writing and technique necessary to score effectively for the modern symphonic orchestra. A good grasp of the fundamental principles of harmony and counterpoint required. All orchestral instruments will be considered individually as to their technique, range, tonal qualities, possibilities and limitations; then in separate choirs, and finally as a unit. Orchestral scores studied in detail; score reading and reduction emphasized; and original work in this idiom encouraged. Mr. Manton.

Prereq.: Music 22 and 24. 3 lec.; 3 cr.

29, 30. The History and Development of Choral Music. Plain song, folk song, the music of the troubadours, the beginnings of harmony and counterpoint, the works of the Netherland masters and of Palestrina and his contemporaries; the German choral works of the Reformation, the Elizabethan madrigalists; the choral works of Bach, Handel, etc.; the choral literature of the nineteenth century and of the modern English, French, and Russian choral composers, such as Elgar, Delius, Holst, Vaughan-Williams, Lambert, Walton, Honegger, etc.

One meeting each week devoted to class singing and study of the works considered in the lectures. Admission limited to qualified students. Mr. Manton.

3 lec. or rec.; 2 cr. (Given in alternate years; offered in 1939–40.)

31, 32. Public School Music and Its Allied Fields. Basic method material and principles of approach to cultivate a taste for the

best music; application of these methods and repertoire through the junior and senior high school periods. Cultivation of growth in perception, understanding and general responsiveness to the art of music, through formal design and emotional content. Training and practical experience in the art of conducting, organization and the production of artistic results in glee clubs and orchestras.

Prereq.: 31 prerequisite for 32. 2 lec. or rec.; 2 cr.

33, 34. CANON AND FUGUE. Perfection of the contrapuntal technique of the student, to enable him to study the larger and freer forms of composition. Based on the fugal works of Bach and Franck. Practice in writing the more practical types of canon; analysis and composition of fugues. Mr. Manton.

Prereq.: Music 22, 24, and 26. 33 prerequisite for 34. 2 lec. or rec.; 2 cr.

PHYSICAL EDUCATION FOR MEN

WILLIAM H. COWELL, *Professor, Director of Athletics;* CARL LUNDHOLM, *Assistant Professor, Associate Director of Physical Education;* HENRY C. SWASEY, *Associate Professor;* PAUL C. SWEET, *Assistant Professor;* GEORGE H. SAUER, *Assistant Professor;* CHARLES M. JUSTICE, *Assistant Professor;* JOHN J. CONROY, *Instructor;* EDWARD J. BLOOD, *Instructor;* JOHN DURIE, *Graduate Assistant;* JOHN FABELLO, *Graduate Assistant;* GEORGE GOODWIN, *Graduate Assistant.*

AIM. To provide in accordance with the needs, capacities and interests of students, the opportunity to participate in physical activities that are physically wholesome, socially sound and mentally stimulating and satisfying.

OBJECTIVES. To develop the organic system generally; to stimulate the neuromuscular system through physical activity; to encourage a proper attitude toward play; to develop through the teaching of skills an appreciation of physical activities as worthwhile leisure-time recreation.

REQUIREMENTS. All freshman and sophomore men students and first-year students in the two-year curriculum in agriculture are required to register for physical education. A student must meet the minimum attendance requirement and pass proficiency tests in the prescribed activities to receive credit each semester.

All freshmen will take a health examination given during freshmen week. Those who fail to meet certain standards of the examination will register for corrective and restrictive physical education and will participate in a program prescribed according to their needs. Students who meet the standards will take a classification test in fundamental motor skills and register for the required program.

A student who passes the classification test and attains a grade of at least 70 in the prescribed activities of the first semester may choose from

a group of elective activities the second semester of each of the freshman and sophomore years.

Each student must provide himself with an activity suit consisting of a gray sleeveless jersey, gray trunks, white woolen socks and rubber-soled tennis or basketball shoes. This suit must be worn at all classes in physical education.

Students are required to furnish their own individual equipment for such activities as tennis, badminton, golf (except clubs used in class instruction), handball, tap dancing and winter sports.

Consult "Subject and Room Schedule" for list and schedule of activities and "Bulletin of Information on Physical Education" for more complete details.

31, 32. Physical Education. Corrective and restrictive and required programs. Students in the required program must select at least one outdoor group or individual activity and one indoor group or individual activity. Corrective program will be prescribed according to needs.

Required of all freshmen. 2 hrs.; ½ cr.

33, 34. Physical Education. Same as 31, 32.

Required of all sophomores. 2 hrs.; ½ cr.

TEACHER PREPARATION COURSES

Required of students registered in the university physical education teacher preparation curriculum for men.

23. Principles of Physical Education. The aims, objectives and principles of physical education and the historical factors which have influenced the physical life of nations. Mr. Lundholm.

Prereq.: Zoölogy 17, 18. 3 lec.; 3 cr.

24. Camp Counseling. The methods and objectives of organized camping for groups; camp departments; camp program building; physical, moral, social and psychological purposes and results of camping; and leadership qualifications for camp counselors. Miss Hoban.

Prereq.: Zoölogy 17, 18. 3 lec.; 3 cr.

35. Play and Recreation. The theories of play, place in education, administration and organization, leadership, hobbies, pageantry, dancing and leisure-time activities. For those who intend to do playground or community recreation work. Miss Hoban.

Prereq.: Zoölogy 17, 18. 3 lec.; 3 cr.

36. Camp Administration. Standards for organized summer camps; health and safety requirements; food, sanitation, facilities and equipment necessary for organized camps.

Prereq.: Zoölogy 17, 18. 3 rec.; 3 cr. (Not offered in 1939–40.)

40. Winter Sports. Instruction and practice in ski jumping, downhill, slalom and cross country skiing and snowshoeing. Conditioning

of men, waxing of skis and selection and care of equipment. The organization and management of winter carnivals and other competitions. Special emphasis on methods of teaching skiing.

Prereq.: Zoölogy 17, 18. 2 rec.; 2 cr.

45. Football. A history of football with consideration of its educational implications and an analysis of the various systems of play. Instruction in team and individual offensive and defensive fundamentals. The rules, theory, strategy, generalship of team play and the responsibilities of the coach for the physical welfare of the team.

Prereq.: Zoölogy 17, 18. 2 rec., 2 cr.

46. Baseball. Theoretical and practical consideration of the basic principles of batting and fielding; the fundamentals of each position; special stress on problems involving team play, coaching methods, physical conditioning and rules; a history of the game with a consideration of its educational values.

Prereq.: Zoölogy 17, 18. 2 rec.; 2 cr.

47. Track and Field Athletics. Instruction and practical demonstrations in starting, sprinting, middle distance and distance running, relay racing, hurdling, high and broad jumping, pole vaulting, shot putting, discus, hammer and javelin throwing. Methods of preparing contestants for the various events.

Prereq.: Zoölogy 17, 18. 2 rec.; 2 cr.

48. Basketball. History of basketball with a consideration of its educational values. Theory and practice in the fundamentals of individual offense and defense. The various styles of team offense and defense and rules of the game. Problems in handling and conditioning a team.

Prereq.: Zoölogy 17, 18. 2 rec.; 2 cr.

61. Problems of Teaching in Physical Education. Methods and materials of instruction, theories of play and actual practice for the successful teaching of recreational activities in school, on the playground and in the community. Studies of activities adapted to different levels of maturity.

Prereq.: Zoölogy 17, 18. 3 rec.; 3 cr.

65. Administration of Physical Education in Secondary Schools. The aims and objectives of health and physical education. Organization and supervision of a complete unified program of health and physical education including the legal aspects, intra-mural and interscholastic athletics, medical problems, budgeting, financing, maintenance of equipment, publicity programs and office management. Each student will be given an opportunity to serve on a committee to draw up an original program of health and physical education in a theoretical or actual situation found in some secondary school. Mr. Lundholm.

Prereq.: Zoölogy 17, 18; P.E. 23 and P.E. 61 or 35; and two courses in the coaching of sports. These last may be taken concurrently. 3 rec.; 3 cr.

EDUCATION-PHYSICAL EDUCATION (ED-P.E.) 93 (93). DIRECTED TEACHING IN PHYSICAL EDUCATION. Given in the department of physical education and athletics for men.

Prereq.: Zoölogy 17, 18; P.E. 23, and P.E. 61 or 35. The student must have completed the methods course in the sport which he is directing or take the course concurrently. 2 to 4 cr.

EDUCATION-PHYSICAL EDUCATION (ED-P.E.) 94. SUPERVISED TEACHING IN PHYSICAL EDUCATION IN THE FIELD. An opportunity under joint supervision of the physical education and education departments, to coach athletics in secondary schools and to assist in supervising a recreational program.

Prereq.: Zoölogy 17, 18; P.E. 23, 65 and P.E. 35 or 36, methods courses in those sports in which the student intends to become actively engaged. 2 to 4 cr.

PHYSICAL EDUCATION FOR WOMEN

MARGARET R. HOBAN, *Assistant Professor and Director;* MARION BECKWITH, *Instructor;* NELL W. EVANS, *Instructor;* ROBERTA J. SCOTT, *Graduate Assistant.*

REQUIREMENTS. Freshman women are required to take physical education 1, 2. Every woman student must take at least one course of physical activity each semester of her freshman, sophomore, and junior years. One additional activity each semester, or a physical education theory course each year, may be elected for additional credit. Except in special cases, the same activity shall not be credited more than twice.

Zoölogy and education are related departments. Certain courses in these departments will be accepted for the completion of a major.

Each student must, upon entering, have a physical examination by the university physician and a posture test by the physical education staff. Semester activities elected by students are approved by the department on the basis of the results of these examinations. Students unfit for active physical education are assigned theoretical work in hygiene.

OBJECTIVES. To encourage wholesome recreational activities; to establish fundamental health habits; to maintain a balance between mental and physical development.

REQUIRED COSTUME AND EQUIPMENT. Special gymnasium uniform consisting of blue cotton shorts and shirt, white anklets and regulation gymnasium shoes. Students are required to furnish their own individual equipment for such activities as tennis, tap dancing, modern dancing,

individual gymnastics, winter sports. For bowling there is a charge of 20 cents a class.

1, 2. PHYSICAL EDUCATION. The art of healthful living. Problems of health, personal appearance, conduct and personality. Practical work scheduled as follows:

First semester. Hockey, soccer, tennis, archery, basketball, formal gymnastics, badminton.

Second semester. Informal gymnastics, winter sports, badminton, archery, tennis, baseball, lacrosse.

(Consult course time and room schedule for combinations of the above courses according to season of the year.) Individual gymnastics continues throughout each semester and is required of each freshman whose physical condition indicates this need.

Required of all freshmen. 1 lec. or rec.; 2 lab. periods; 2 cr.

3, 4. PHYSICAL EDUCATION. *First semester.* Archery, tennis, hockey, soccer, bowling, formal gymnastics, fencing, basketball, badminton. (Consult course time and room schedule for combinations of the above courses.) Tap dancing, modern dancing, individual gymnastics, continuing throughout the semester.

Second semester. Informal gymnastics, fencing, tap dancing, bowling, winter sports, archery, tennis, lacrosse, baseball, golf, badminton. (Consult course time and room schedule for combinations of the above courses according to season of the year.) Dancing, individual gymnastics, continuing throughout the semester.

Required of sophomores. 2 periods; 1 cr.

5, 6. PHYSICAL EDUCATION. Elect semester courses from the list under physical education 3, 4.

Required of juniors. 2 periods; 1 cr.

7, 8. PHYSICAL EDUCATION. Elect semester courses from the list under physical education 3, 4. Senior majors are expected to elect this course.

Open to seniors. 2 periods; 1 cr.

11, 12. PHYSICAL EDUCATION. Elective courses open to freshmen may be chosen from the list under physical education 3, 4.

2 periods; 1 cr.

13, 14. PHYSICAL EDUCATION. Elect semester courses from the list under physical education 3, 4.

Open to sophomores. 2 periods; 1 cr.

15, 16. PHYSICAL EDUCATION. Elect semester courses from the list under physical education 3, 4.

Open to juniors. 2 periods; 1 cr.

17, 18. Physical Education. Elect semester courses from the list under physical education 3, 4. Senior majors are expected to elect this course.

2 periods; 1 cr.

MAJOR COURSES

Students majoring in physical education are expected to take the courses listed below. Women students from other departments may, however, elect any of these courses provided they have the proper prerequisites.

23. Principles of Physical Education. The aims, objectives, and principles of physical education and the historical factors which have influenced the physical life of nations. Mr. Lundholm.

3 lec.; 3 cr. (Not open to students who have had P.E. 19.)

24. Camp Counseling. The methods and objectives of organized camping for groups; camp departments; camp program building; physical, moral, social and psychological purposes and results of camping; and leadership qualifications for camp counselors. Miss Hoban.

3 lec.; 3 cr. (Not open to students who have had P.E. 22.)

35. Play and Recreation. The theories of play, place in education, administration and organization, leadership, hobbies, pageantry, dancing and leisure-time activities. For those who intend to do playground or community recreation work. Miss Hoban.

3 lec.; 3 cr. (Not open to students who have had P.E. 21 and 64.)

36. Camp Administration. Standards for organized summer camps; health and safety requirements, food, sanitation, facilities and equipment necessary for organized camps. Miss Hoban.

3 lec.; 3 cr. (Not offered in 1939–40.) (Formerly offered as P.E. 62.)

37, 38. The Theory and Coaching of Athletics. The principles involved in the teaching of team games and individual sports with emphasis on coaching methods and officiating. Miss Evans, Miss Beckwith. (Formerly offered as 31, 32.)

2 lec. or rec.; 4 lab.; 3 cr.

41, 42. Remedial Gymnastics and Massage. The adaptation of exercise to individual needs; physical abnormalities and their corrections; theory and practice of massage. Miss Hoban.

Prereq.: Zoölogy 1, 2; 3, 4. 41 prerequisite for 42. 2 lec. or rec.; 2 lab.; 3 cr.

(P–E) 91, 92. Problems in the Teaching of Physical Education for Women and Supervised Teaching. The organization of a comprehensive program of activities from the primary grades through col-

lege. Opportunity for supervised teaching in the grades and high school. Miss Hoban.

2 lec. or rec.; 4 lab.; 3 cr.

PHYSICS

HORACE L. HOWES, *Professor;* CLEMENT MORAN, *Associate Professor;* WILLIAM H. HARTWELL, *Assistant Professor;* IRVING H. SOLT, *Assistant Professor;* HAROLD I. LEAVITT, *Instructor;* ROBERT MACE, *Assistant.*

The department of physics is housed in the west end of DeMeritt hall. In the basement are located the introductory physics laboratory with apparatus room, an electrical measurements laboratory, a switchboard hall, a storage room and a suite of dark rooms to accommodate students in photography. On the first floor are the general physics laboratory and apparatus room, a recitation room and the department office. On the second floor is the lecture room, with adjoining apparatus room.

Instruction in physics is given primarily by recitations and laboratories with frequent lectures, examinations, written reports and personal conferences. The aim of the department is to develop student minds capable of doing independent thinking in the science. There is a small but well chosen collection of apparatus for use in laboratories and lectures.

1, 2. INTRODUCTORY PHYSICS. The properties of matter, heat, magnetism, electricity, wave-motion, sound and light. Experimental lectures, laboratory exercises, recitations. Messrs. Moran, Hartwell, Solt, and Mace.

Required of students in agriculture. Elective for liberal arts students. 1 lec.; 2 rec.; 1 lab.; 4 cr.

3, 4. PHYSICS FOR ARCHITECTS. An introductory course emphasizing stresses in solids, pressure in fluids, transmission of heat, distribution of illumination, acoustics, etc. Lectures, recitations, problem work and experiments. High school algebra and geometry presupposed. Mr. Hartwell.

Required of sophomores in architecture. Elective for liberal arts students. 1 lec.; 2 rec.; 1 lab.; 4 cr.

5, 6. PRE-MEDICAL PHYSICS. The general principles of physics with attention to the needs of the students in preparation for medical work, such as the presentation of data in graphical form, and the handling of electrical apparatus. Mr. Hartwell.

Open only to juniors and seniors in the pre-medical curriculum. 3 rec.; one 3-hour lab.; conferences; 5 cr.

7, 8. GENERAL PHYSICS. Mechanics and properties of matter; heat; selected topics in sound and light; electricity and magnetism. Messrs. Howes, Moran, Hartwell, Solt and Leavitt.

Prereq.: Mathematics 3 or 6 in advance, and mathematics 7, 8 either in parallel or as a prerequisite. Physics 7 prerequisite for 8. Required of sophomores in chemical, civil, electrical and mechanical engineering curricula. Elective for those liberal arts students who have passed 1, 2 and have the prerequisites in mathematics. 1 experimental lec.; 3 rec.; 1 problem hour; 4 cr.

9. General Physics Laboratory. Open only to students studying, or credited with physics 7. Experiments in mechanics and properties of matter, with report writing and curve plotting of data. Appreciation of the laws of physical science; the development of laboratory technique, and the estimation of the limitations of scientific experimentation. Messrs. Howes, Hartwell, Solt, and Leavitt.

Prereq.: The same as those for physics 7, 8. Required of sophomores in chemical, civil, electrical and mechanical curricula. Elective for liberal arts students under the same conditions as physics 7. 2 lab.; 3 cr.

10. General Physics Laboratory. A continuation of physics 9 to include experiments in heat, sound, light, electricity and magnetism. Messrs. Howes, Solt and Mace.

Prereq.: Physics 7 and 9. Physics 8 in parallel or as a prerequisite. Required of students in chemical, civil, mechanical and electrical engineering curricula. Elective for liberal arts students. 2 lab.; 3 cr.

14. Elementary Optics and Photography. Fundamental principles of geometric optics as applied to photographic instruments. Laboratory work includes a study of focal planes, images, and other properties of lenses, and the making of photographs. Students will furnish their supplies, costing approximately $2. Mr. Moran.

Prereq.: Physics 2, or 8. Course not open to freshmen. 1 lec.; 1 rec.; 1 lab.; 3 cr.

15. Survey of Physical Science. The fundamental facts and principles necessary for an understanding of such subjects as the earth as an astronomical body and our neighbors in space; the origin of the solar system; the universe as a whole; the nature of matter and energy, heat, light, sound, electricity, radiant energy and atomic structure. Mr. Leavitt.

Open to sophomores preparing to teach in the fields of English, social studies, and the foreign languages, who may elect this course and physics 16 to meet their physical science requirement for the degree. 3 lec. or rec.; 3 cr.

16. Survey of Physical Science. The fundamental facts and principles necessary for an understanding of such subjects as the constitution of matter, physical changes, chemical changes, communication, the uncontrolled changes or geological evolution of our physical environment, the climate and weather. Mr. Leavitt.

Open to sophomores preparing to teach in the fields of English, social studies and the foreign languages. 3 lec. or rec.; 3 cr.

51. THEORY OF ELECTRONS. The theory of electricity including the passage of a current through a gas, the mobility of ions, the determination of charge and mass of the electron, ionization by collision, the corona discharge, cathode rays, positive rays, thermionic emission, photo-electricity and X-rays. Mr. Howes.

Prereq.: Physics 7, 8; mathematics 7, 8. Required of seniors in electrical engineering. Open to juniors or seniors in liberal arts on same conditions. 2 lec.; 2 cr.

52. ELECTRICAL MEASUREMENTS. Experiments on the use of precision potentiometers, the constants of sensitive galvanometers, time tests of batteries, low resistance by the Kelvin double bridge, high resistance by the method of leakage, the use of alternating current bridges for measuring capacity, self and mutual inductance and frequency, the characteristics of various types of photo-electric cells, and the Millikan oil-drop experiment. Mr. Moran.

Prereq.: Physics 8 and 10. Required of students in electrical engineering and chemistry. 1 lec.; 1 lab.; 3 cr.

54. ACOUSTICS. The principles of sound origins, propagation, and reception. Lectures and recitations. Mr. Howes.

Elective for graduate and undergraduate students who have passed physics 8 and 10. 3 lec.; 3 cr.

GENERAL SCIENCE — EDUCATION (GEN. SCI.-ED.) 91. PROBLEMS IN THE TEACHING OF GENERAL SCIENCE. Units of subject matter presented in the form of lecture-demonstrations and discussions, accompanied by assigned readings. The objectives and methods of teaching general science developed with the subject matter presentations. Opportunity for students to participate in the lecture demonstrations. Mr. Leavitt.

3 lec. or rec.; 3 cr.

POULTRY HUSBANDRY

T. BURR CHARLES, *Professor;* CARL L. MARTIN, *Assistant Professor;* CHARLES A. BOTTORFF, *Assistant Professor;* ALBERT E. TEPPER, *Instructor.*

1. FARM POULTRY. The general principles of poultry husbandry and their practical applications with emphasis on factors of culling, breeding, housing, feeding, marketing, diseases and parasites, incubation and management. Mr. Charles.

Recommended elective for freshmen in agriculture. 2 lec.; 1 lab.; 3 cr.

6. POULTRY BREEDING. The genetic principles involved in breeding for egg production, including practical application and demonstration. Mr. Charles.

Required of all juniors in poultry. Elective for others. 2 lec.; 2 cr.

7. Poultry Breeds and Judging. The origin, history and classification of breeds. Theory and practice in judging fowls for egg production and exhibition and for intercollegiate contests. Mr. Tepper.

Required of juniors in poultry. Elective for others. 2 lec.; 1 lab.; 3 cr.

8. Incubation and Brooding. The principles involved in incubation and brooding of poultry; embryonic development. Students individually operate incubators and care for groups of chicks. Mr. Charles.

Required of seniors in poultry. Elective for others. 2 lec.; 1 lab.; 3 cr.

9. Poultry Marketing. The preparation of poultry and eggs for market. Egg qualities and grades, candling and packaging; egg and poultry market conditions; practical instruction in killing, picking and dressing. Mr. Tepper.

Required of all seniors in poultry. Elective for others. 2 lec.; 2 cr.

10. Poultry Feeding. The principles of feeding; analysis of recent experimental work and current feed problems. Each student will care for a group of birds for several weeks for practical observation and collection of data. Mr. Tepper.

Prereq.: Poultry husbandry 1. Required of seniors in poultry. Elective for others. 2 lec.; 1 lab.; 3 cr.

11. Poultry for Teachers. For teacher preparation students only. Mr. Tepper.

Hours to be arranged. 2 cr.

12. Poultry Housing. Design and construction of poultry houses and equipment; costs of materials; management principles. Mr. Tepper.

Required of seniors in poultry. Elective for others. 1 lec.; 1 lab.; 2 cr.

13. Poultry Management. The application of successful business principles to poultry farming; study of surveys and production costs. As a part of the laboratory work, a detailed "three year" development plan of a poultry farm will be studied. Mr. Charles.

Prereq.: Poultry husbandry 1. Required of juniors in poultry. Elective for others. 2 lec.; 1 lab.; 3 cr.

14. Poultry Practice. Practical work at the university poultry plant in the hatching, rearing and care of chickens. Mr. Charles.

Required of all juniors in poultry. Ten hours of practical work. 4 cr. (Note: By permission, students with previous practical poultry experience may substitute 4 semester credits of electives for this course.)

15. Poultry Diseases. The anatomy of the fowl; diseases and parasites encountered in poultry practice; methods of prevention and control. Mr. Bottorff.

Required of all seniors in poultry. Elective for others. 3 lec.; 1 lab.; 4 cr.

17, 18. Poultry Seminar. Students abstract experimental data and report on various current poultry topics. Thesis required. Mr. Charles.

Required of all seniors in poultry husbandry. Elective for others. 1-hour conference; 1 cr.

53, 54. Poultry Problems. Students are given a selection of various problems and are required to compile and present accurate and detailed information in their solution. Mr. Charles, Mr. Martin.

Required of seniors in poultry husbandry. Hours and credits to be arranged.

SOCIOLOGY

Charles W. Coulter, *Professor;* Joseph E. Bachelder, Jr., *Instructor.*

It is the aim of the department: (1) to develop in the student an understanding of the society in which he lives—its laws, processes, institutions and organizations, so that he may effectively function as a unit in the social order; (2) to provide for pre-professional and limited professional training in the methods and techniques of social work; (3) to provide a professional background for students preparing to teach sociology in secondary schools.

Requirements for a major in sociology—24 semester credits with a grade of 75 or better. Students are expected to take sociology 1, 2, 84 or 75, and at least 6 semester credits (depending on field of interest) of specified work in one or more of the following correlated subjects: economics, government, history, psychology, home economics or zoölogy.

1. Principles of Sociology. The underlying laws of human society, especially those governing the origin, growth and decline of institutions; group relationships to biological and geographic environments; social processes such as conflict, competition, imitation, accommodation, coöperation, assimilation and differentiation; societal isolation; culture, its organization, content, location and formation; social institutions including the familial, religious, economic, educational, recreational and political; social change with its attendant maladjustments, and social control. Mr. Bachelder.

3 lec. or rec.; 3 cr.

2. Social Psychology. The social aspects of personality, of the process whereby the individual's impulses are defined by the cultural patterns of the group, of the processes by which one acquires the social world in which he lives, and of the factors which determine attitudes,

wishes, habit systems, one's conception of himself and his social rôle. The methods utilized at present for the study of human nature critically discussed. Mr. Coulter.

3 lec. or rec.; 3 cr.

53. Cultural Anthropology and Ethnology. (1) A comparative study of primitive folk-ways, institutions and social organization, marriage, economic activities, religion, property inheritance and folklore; culture and the principles of its development; the significance of primitive culture for an understanding of contemporary civilization. (2) A comparative study of peoples; environmental factors; societal effect of invasion, colonization and linguistic fusions; race and class struggles; jingoism; race relations in mid-European territory and in the Far East; the problem of world peace. Mr. Coulter.

Prereq.: Sociology 1 and 2, or by special permission. 3 lec. or rec.; 3 cr.

54. The Immigrant and the Negro. Negro and immigrant heritage; problems of assimilation and Americanization. Intensive study of selected groups, the Negro, the Jew, the Italian, the Pole, the Greek, the French-Canadian and the Japanese. Mr. Coulter.

Prereq.: Sociology 1 and 2, or by special permission. 3 lec. or rec.; 3 cr.

57. Rural Sociology. The foundation materials of rural life; the physical setting—land, land-policies, land-tenure; land-economics; farm and village population—its composition, its changes; the income basis of rural life, the standard of living; rural habits, attitudes; rural groupings, arrangements, the mechanisms of communication and social control; rural institutions with respect to welfare, sociability, education and religion. Mr. Bachelder.

Prereq.: Sociology 1 and 2, or by special permission. 3 lec. or rec.; 3 cr.

60. Urban Sociology. The changes in community life that have come with the shift of population from rural districts; factors involved in the rapid growth of cities since 1800; physical structure of the city, processes of internal growth; the segregation which makes of the city a mosaic of distinct cultural worlds; increase in mobility which multiplies social stimuli; typical areas within the city—foreign colonies, rooming house districts, apartment and hotel areas, outlying areas of homes; the effect of the city upon community life, the family, church, school, unorganized group behavior, attitudes and life organization of the person. Mr. Bachelder.

Prereq.: Sociology 1 and 2. 3 lec. or rec.; 3 cr.

61. Social Pathology. Personal, institutional and community disorganization. The social factors involved in alcoholism, drug addiction, prostitution, poverty, vagrancy, juvenile and adult delinquency, divorce and desertion; instances of the break-down of public opinion,

and of community, family, religious and legal sanctions as forces for social control. Remedial measures based upon a discussion of human nature and the physical conditions of modern life. Especially recommended for pre-medical, pre-legal, and other students who will be handling social variants in the field of their professions. Mr. Bachelder.

Prereq.: Sociology 1 and 2. 3 lec. or rec.; 3 cr.

62. Community Organization. Town and country community organization with respect to natural and interest groupings; the survey; methods of analyzing problems of community organization; methods of utilizing institutions and equipment in the development of programs and organizations for health, recreation, general welfare and control. Mr. Bachelder.

Prereq.: Sociology 1 and 2, or by special permission. 3 lec. or rec.; 3 cr.

71. Crime and Its Social Treatment. The increase, extent and more popular theories of crime and delinquency, juvenile and adult. Case studies of individual delinquents with special reference to the influence of family and neighborhood environments; typical social situations and their influence; programs for the social treatment of crime, the reorganization of reformatory institutions, classification of offenders for separate treatment, the "honor system," limited self-government, parole and probation, and the juvenile court as agencies for the prevention of delinquency. Mr. Coulter.

Prereq.: Sociology 1 and 2, or by special permission. 3 lec. or rec.; 3 cr.

72. The Family. The rise of the marriage institution and the family. Divorce, desertion, changing status of women, child welfare, child labor laws, and related modern problems. Mr. Coulter.

Prereq.: Sociology 1 and 2, or by special permission. 3 lec. or rec.; 3 cr.

75. Methods of Social Research. The application of the historical, survey, statistical and case methods to social data; the use of bibliography, definition and selection of the problem, determination of the data needed, collection and arrangement of data for presentation and exposition. Mr. Bachelder.

Prereq.: Sociology 1 and 2. 3 lec. or rec.; 3 cr.

76. Principles of Social Case Work. The present trend in family case work; the techniques of interviewing, diagnosis, treatment and case recording; the significance of present day relief practices. Mr. Bachelder.

Prereq.: Sociology 1 and 2. 3 lec. or rec.; 3 cr.

84. Methods of Social Progress. Efforts to improve social conditions and attain a larger measure of social justice; community experiments; development of modern social legislation; application of principles

of insurance to social problems; various forms of mutual aid and philanthropy; endowments and special foundations. Mr. Coulter.

Prereq.: Sociology 1 and 2. 3 lec. or rec.; 3 cr.

87. The Church in American Society. Contemporary organizations for worship in the community, their correlation, functions, and problems; the rise of the church and its relation to labor, the state, school, social welfare agencies; significance to the community of its organization and financing; church federation and union. Mr. Coulter.

Prereq.: Sociology 1 and 2. 3 lec. or rec.; 3 cr. (Not offered in 1939–40.)

88. Recreation and Leisure. Problems arising from the increase of leisure time in modern society; typical leisure time activities; theories of play; practical training programs in recreation; the function of leadership; analysis of types and qualities of leadership as exhibited by typical leaders; the material and program of leadership training. Mr. Bachelder.

Prereq.: Sociology 1 and 2. 3 lec. or rec.; 3 cr.

89, 90. Development of Sociological Thought. The history of sociological thought, with special reference to the writings of Comte, Spencer and the later writers of the nineteenth century; a comparison of contemporary sociological systems. Mr. Coulter.

Prereq.: Sociology 1 and 2. 89 prerequisite for 90. 3 lec. or rec.; 3 cr. (Not offered in 1939–40.)

95, 96. Sociological Research. A seminar for conference and reports on research projects arranged for graduates and seniors who have completed major work in sociology. General topic first semester, social control; second semester, social legislation. Mr. Coulter, Mr. Bachelder.

Prereq.: Sociology 75 and 84. 3 meetings; 3 cr.

97, 98. Social Service and Field Work. Designed to give the student practical experience in social work. Field work in connection with neighboring social agencies, supplemented by readings, lectures and conferences. Mr. Coulter.

Prereq.: 12 credits in sociology. The course may be taken during the college year for 3 credits each semester, or during the summer in connection with certain approved settlements, correctional institutions, or case work agencies. Eight weeks' summer residence with an agency is required, for which a maximum of 6 credits is given.

Education 21, 22. American Society. A content course in educational sociology. (See page 185). Mr. Coulter.

ZOÖLOGY

C. FLOYD JACKSON, *Professor;* EDYTHE T. RICHARDSON, *Assistant Professor;* LLOYD C. FOGG, *Associate Professor;* EARL E. HOOVER, *Assistant Professor;* RUTH T. COLBY, *Instructor;* ELEANOR L. SHEEHAN, *Instructor;* W. ROBERT EADIE, *Instructor;* RUSSELL P. HAGER, *Instructor;* F. GAYNOR EVANS, *Instructor;* JOSEPH M. PENSACK, *Graduate Assistant;* ROBERT W. HARRINGTON, JR., *Graduate Assistant.*

The university is favorably situated geographically for the study of zoölogy. Within a few minutes' walk of the laboratory, the Oyster river meets the tide water from Great bay. This furnishes a graduation of salt, brackish and fresh water with an abundance of their characteristic fauna. On the other hand, there are numerous bodies of fresh water, with typical fresh water forms.

The department of zoölogy is prepared to offer courses in systematic zoölogy, physiology, sanitation, philosophical zoölogy, and anatomical zoölogy.

The equipment for the work in systematic zoölogy consists of a well-lighted laboratory, provided with tables, charts, dissecting and compound microscopes. Recent books and periodicals on systematic zoölogy are at the student's disposal.

The proximity to both salt and fresh water renders the work in advanced systematic zoölogy unusually attractive. In addition to the regular collecting equipment, nets, aquaria, etc., advanced students also have the use of rowboats and a gasoline launch.

In the work in physiology, hygiene and sanitation, the department is provided with an unusually fine collection of injected preparations of the human body, and with numerous charts.

For work in evolution and experimental zoölogy the department has a very complete library. Studies in ecology in Great bay and vicinity are encouraged, for which purpose the students have the use of camera equipment. Evolution is studied under natural conditions and aquaria are furnished for laboratory study and experiments.

The work in anatomical zoölogy is greatly facilitated by an abundance of fresh material which may be collected as needed. For the study of human and comparative anatomy a full set of skeletons and preserved material is provided. Students interested in histology have access to a private collection of some two thousand microscope slides.

Students majoring in zoölogy will ordinarily find it desirable to elect courses in botany and chemistry. If the objective is the teaching of biology, a combined major in botany and zoölogy will be allowed. Such students should complete the freshman courses in these subjects as early in their curricula as possible.

Students planning to fill pre-medical requirements should consult the special curriculum. Students interested in dentistry may elect a modified pre-medical curriculum.

1, 2. PRINCIPLES OF ZOÖLOGY. An elementary study of the principles of life, its development, structural basis and physiological activity

intended to give a practical knowledge of animal life. Required of all pre-medical students and others intending to major in zoölogy. Messrs. Jackson, Eadie, Evans, Hager. Mrs. Colby, Miss Sheehan, Mrs. Richardson.

Prereq.: 1 prerequisite for 2. Freshman course. 3 lec. or rec.; 1 lab.; 4 cr.

3, 4. Hygiene and Sanitation. The principles of health preservation; hygiene of digestion, muscular hygiene, neural hygiene, and other important physiological processes affecting health. A study of food, water, and general sanitation, and the control of bacterial disease. Mr. Fogg.

Prereq.: One year of zoölogy. 3 prerequisite for 4. 3 lec. or rec.; 3 cr.

5, 6. Organic Evolution. The various problems of evolution and their relation to human life. Evidence of man's origin based on anatomical, embryonic and paleontological data. Mrs. Colby.

Prereq.: Two years of zoölogy. 5 prerequisite for 6. 3 lec. or rec.; 3 cr.

15, 16. Comparative Anatomy of the Vertebrates. Illustrates the evolution of the organs and systems in the mammals. Selected vertebrate types dissected in the laboratory. Mr. Eadie.

Prereq.: Zoölogy 2. 15 prerequisite for 16. Sophomore course. 1 lec.; 2 lab.; 3 cr.

17, 18. Human Anatomy and Physiology. The structure and function of the human body, with a detailed study of the different systems. Collateral readings, written reports and conferences. Mrs. Richardson.

Prereq.: Zoölogy 2. 17 prerequisite for 18. 3 lec.; 3 cr. (3 lec.; 1 lab.; 4 cr.—for majors in physical education for women and men in physical education teacher preparation curriculum.)

ADVANCED COURSES

51, 52. Invertebrate Zoölogy. The structure, habits, and ecological relationships of the different groups of invertebrate animals.

Given at the Isles of Shoals marine laboratory during the summer session.

53, 54. Histology and Development. Microscopical anatomy of normal vertebrate tissue. The fundamental principles of embryonic development. Emphasis on human relationship. Prepared slides of tissues are available and type forms of embryos. Especially designed for pre-medical and pre-dental students, and for majors in zoölogy. Mr. Fogg.

Prereq.: Zoölogy 1, 2, 15, 16. 53 prerequisite for 54. 3 lec. or rec.; 1 lab.; 4 cr.

57, 58. Laboratory Technique. A general laboratory course in methods used in preparation of zoölogical material, microscope slides, mounting embryos, making serial sections, etc. Will be adapted to individual needs as far as possible. Mr. Hager.

Prereq.: Permission of the instructor. 57 prerequisite for 58. 1 lec.; 2 lab.; 3 cr.

59, 60. Advanced Physiology. Human physiology with special emphasis on nutrition, circulation, respiration, excretion and secretion. Lectures, assigned topics and laboratory experiments. Mrs. Richardson and Mr. Hager.

Prereq.: Two years' work in zoölogy. 59 prerequisite for 60. 3 lec. or rec.; 3 cr. (3 lec. or rec.; 1 lab.; 4 cr., by permission of the instructor.)

61, 62. Cytology and Genetics. A detailed study of the cell, including morphology, the chemical and physical nature of protoplasm, mitosis, meiosis, syngamy, and related phenomena leading up to the physical basis of inheritance and the study of Mendel's laws, the expression and interaction of the genes, linkage, sex and its inheritance, the inheritance of quantitative characters, and the types and causes of variations. Mrs. Richardson.

Prereq.: Two years' work in zoölogy. 61 prerequisite for 62. 3 lec. or rec.; 1 lab.; 4 cr. (Given in alternate years; not offered in 1939–40.)

63, 64. Neurology. A comparative study of the nervous systems of the lower animals and a detailed practical study of the morphology, physiology, and histology of the human nervous system. Mrs. Richardson and Mr. Eadie.

Prereq.: Two years' work in zoölogy. 63 prerequisite for 64. 3 lec. or rec.; 1 lab.; 4 cr. (Given in alternate years; offered in 1939–40.)

71, 72. Vertebrate Field Zoölogy and Technique. General ecological principles as applied to vertebrate animals; types of habitats and characteristic vertebrate associations; relation of the animals to environment. Organization and use of field equipment; collection of scientific data in the field. Adapted for students interested in fish and game management or other phases of economic zoölogy or in outdoor recreation. Mr. Jackson and Mr. Eadie.

Prereq.: Permission of the instructor. 3 lec. or rec., 1 lab.; 3 to 4 cr.

Biology-Education (bi-ed) 91. Problems in the Teaching of High School Biology. A general survey of the field of biology, correlating the various lines of work previously studied.

Given at the Isles of Shoals marine laboratory during the summer session. Open to seniors and graduate students who have satisfactorily completed one year of college biology and education 61.

ZOÖLOGY-EDUCATION (ZOÖL-ED) 93, 94. SUPERVISED TEACHING IN ZOÖLOGY. A review of general zoölogy and an introduction to teaching for zoölogy students. Qualified students will be allowed to teach under supervision in the freshman laboratory. Students planning to teach biology should supplement this course with similar work in the department of botany. Students who desire to take supervised teaching in high schools may elect 94 as 6 credits under the usual regulations of the department of education. Miss Sheehan.

Prereq.: Senior standing and the permission of the instructor. 1 lec. or rec.; 1 or 2 lab.; 2 or 3 cr.

95, 96. PROBLEMS OF CONSERVATION RESEARCH. Open to advanced students or those who show unusual promise in the field of research. Problems in all phases of conservation work and specifically in applied chemistry, zoölogy, ecology, genetics, limnology and silviculture. Nature of problems to be determined by the need of the New Hampshire fish and game department for research and the background and interests of individual students. Representative from the New Hampshire fish and game department.

Prereq.: Permission of the instructor. 1 conference, 2 lab.; 4 cr.

97, 98. SPECIAL PROBLEMS AND SEMINAR. Seminar discussions on current zoölogical literature conducted each week. Advanced students may elect a special problem provided they present a detailed outline of the subject and can furnish adequate proof of their ability to carry it out with equipment available. Mr. Fogg and the staff.

Prereq.: Permission of the instructor. Graduate or undergraduate credit. Credits to be arranged.

SERVICE COURSES

48. GENERAL ZOÖLOGY. The principles of animal life, with special emphasis on human anatomy and physiology; the general principles of physiology, embryology and genetics as applied to various forms of animals. Mr. Hager.

Required of sophomores in agriculture. Open only to students in agriculture. 3 lec.; 3 cr.

49. GENETICS. The physical basis of inheritance; laws governing Mendelian inheritance, and their application to plant and animal breeding. (Same content as 62.) For agricultural students. Mrs. Richardson.

2 lec. or rec.; 2 cr.

TWO-YEAR COURSE IN AGRICULTURE

The two-year course in agriculture is in the process of reorganization. This reorganization is in the direction of making the work even more practical than it has been in the past. More actual participation in the agricultural activities about the campus is contemplated; and, in addition, students will be required to carry on projects on their home farms under the supervision of a member of the university staff.

Students interested in the more technical aspects of agriculture and prepared to study on the technical level should enroll in one of the four-year courses of the College of Agriculture. It will be impossible to transfer credit from the new two-year course to the four-year course. Although graduation from a high school is not required for entering the two-year course, it is assumed that most of those entering the course will be high school graduates, as at present.

Those interested in the two-year agricultural course should write to the university registrar for a descriptive booklet.

SUMMARY OF REGISTRATION, 1936–37

College	Agriculture											Liberal Arts							Technology									Grand Total		
Regular Curricula (Classes)	General	Teacher Tr.	Poultry Husb.	Animal Husb.	Dairy Husb.	Forestry	Horticulture	Agric. Chem.	Botany	Entomology	Total	General	General Bus.	Pre-Med.	Home Econ.	Social Service	Secretarial	Total	Architecture	Chem. Engr.	Civil Engr.	Electr. Engr.	Mech. Engr.	General	Total	Graduate	Summer School	Men	Women	Total
Senior	3	3	1	2	4	20	4	1	2	..	40	145	27	18	27	..	..	217	3	12	17	10	14	..	56	..	....	213	100	313
Junior	5	5	2	2	5	8	1	..	..	..	28	112	28	21	16	1	4	182	5	17	17	13	14	..	66	..	....	198	78	276
Sophomore	5	1	..	5	8	21	4	3	..	4	51	174	38	51	28	5	7	303	6	21	13	16	23	..	79	..	....	296	137	433
Freshman	9	5	2	1	2	36	5	2	..	..	62	230	42	36	21	3	1	333	9	37	18	12	33	13	122	..	....	360	157	517
Special	7	..	..	..	..	..	..	..	..	..	7	22	..	..	..	..	..	22	..	..	..	..	..	2	2	..	....	16	15	31
Graduate	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	53	....	37	16	53
Total—regular cur.	29	14	5	10	19	85	14	6	2	4	188	683	135	126	92	9	12	1057	23	87	65	51	84	15	325	53	....	1120	503	1623
Two-yr. agr.—2nd yr.	12	..	..	..	..	..	..	..	..	..	12	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	....	12	...	12
1st yr.	24	..	..	..	..	..	..	..	..	..	24	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	....	23	1	24
Total	36	..	..	..	..	..	..	..	..	..	36	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	....	35	1	36
Summer school 1936	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	331	186	145	331
Total short cur.	36	..	..	..	..	..	..	..	..	..	36	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	331	221	146	367
Grand total	65	14	5	10	19	85	14	6	2	4	224	683	135	126	92	9	12	1057	23	87	65	51	84	15	325	53	331	1341	649	1990
Less duplicates	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	48	37	11	48
Net gross total	65	14	5	10	19	85	14	6	2	4	224	683	135	126	92	9	12	1057	23	87	65	51	84	15	325	53	293	1304	638	1942
Totals 1935–36	58	14	10	5	13	69	11	3	..	2	185	599	123	110	92	15	0	1043	25	81	72	51	73	26	328	42	342	1316	624	1940

SUMMARY OF REGISTRATION, 1937–38

College	Agriculture											Liberal Arts								Technology									Grand Total		
Regular Curricula (Classes)	General	Teacher Tr.	Poultry Husb.	Animal Husb.	Dairy Husb.	Forestry	Horticulture	Agric. Chem.	Botany	Entomology	Total	General	General Bus.	Pre-Med.	Teacher Tr.	Home Econ.	Social Service	Secretarial	Total	Architecture	Chem. Engr.	Civil Engr.	Electr. Engr.	Mech. Engr.	General	Total	Graduate	Summer School	Men	Women	Total
Senior	8	5	2	3	5	10	..	..	..	..	33	103	27	12	20	17	4	5	188	4	15	18	10	11	..	58	..	..	199	80	279
Junior	4	4	..	4	6	17	2	4	..	4	45	149	42	26	5	22	6	14	264	4	21	10	13	20	..	68	..	..	261	116	377
Sophomore	6	9	2	1	1	24	1	3	..	..	47	166	56	23	8	19	7	17	296	4	36	16	16	28	..	100	..	..	306	137	443
Freshman	11	..	6	9	4	31	3	1	..	1	66	279	27	38	3	16	3	3	369	13	56	18	18	44	..	149	..	..	406	178	584
Special	3	..	2	..	1	1	4	..	..	1	12	12	..	1	3	1	..	..	17	2	1	..	..	13	..	16	..	..	28	17	45
Graduate	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	52	..	35	17	52
Total—regular cur.	32	18	12	17	17	83	10	8	..	6	203	709	152	100	39	75	20	39	1134	27	129	62	57	116	..	391	52	..	1235	545	1780
Two-yr. agr.—2nd yr.	17	..	..	..	..	..	..	..	..	..	17	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	16	1	17
1st yr.	19	..	..	..	..	..	..	..	..	..	19	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	19	..	19
Total	36	..	..	..	..	..	..	..	..	..	36	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	35	1	36
Summer school 1937	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	351	174	177	351
Total short cur.	36	..	..	..	..	..	..	..	..	..	36	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	351	209	178	387
Grand total	68	18	12	17	17	83	10	8	..	6	239	709	152	100	39	75	20	39	1134	27	129	62	57	116	..	391	52	351	1444	723	2167
Less duplicates	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	50	32	18	50
Net gross total	68	18	12	17	17	83	10	8	..	6	239	709	152	100	39	75	20	39	1134	27	129	62	57	116	..	391	52	301	1412	705	2117
Totals 1936–37	65	14	5	10	19	85	14	6	2	4	224	683	135	126	..	92	9	12	1057	23	87	65	51	84	15	325	53	283	1304	638	1942

INDEX

PAGE

Accounting, courses in 183
Administration, major administrative assistants 49
officers of 7
Admission requirements 90
of special and advanced students 97, 98
Aeronautics 237
Agricultural and biological chemistry, curriculum 104
credit tabulation of 112
department, personnel, and courses 159
Agricultural economics, department, personnel, and courses 160
Agricultural engineering, department, personnel, and courses 161
Agricultural Experiment Station 53
publications of 54
Agriculture, College of 102
Agriculture, Two year curriculum 263
Agronomy and agricultural engineering, department, personnel, and courses 161
Alumni representation, College of Technology 148
Animal husbandry, curriculum 105
credit tabulation of 113
department, personnel, and courses 163
Architecture curriculum 146
credit tabulation of 149
department, personnel, and courses 165
Artillery 65, 241
Arts, College of Liberal 121
Arts, fine and applied, program of study 123, 205
Astronomy 232
Athletics (see Physical education) 245
Athletic facilities 59

Bacteriology, courses 170
Biology, applied, program of study 123
Board, cost of 77
Books and Book store 77
Botany and bacteriology, curriculum 105
credit tabulation of 110, 114
department, personnel, and courses 169
Buildings, list of 56
Bulletins, list of 2

INDEX

PAGE

Bureau of appointments 65
Business, general curriculum 124
credit tabulation of 130

Cafeteria 77
Calendar, university 5
Certificate of graduation, Two year agriculture 55, 263
Checking accounts, students 78
Chemistry, agricultural, and biological courses 159
Chemistry and chemical engineering curricula 147
credit tabulation of 151
department, personnel, and courses 171
Civil engineering, curriculum 147
credit tabulation of 153
department, personnel, and courses 175
Clubs 68
Colleges of the university 53
Council, university 53
Courses, description of 158
Curricula, College of Agriculture 102
College of Liberal Arts 121
College of Technology 145

Dairy husbandry, curriculum 106
credit tabulation of 110, 115
department, personnel, and courses 179
Degrees 55
advanced 100
requirements for:
College of Agriculture 102
College of Liberal Arts 121
College of Technology 145
Design (see architecture) 167
Dining hall, university 77
Dormitories 58
regulations and room rent 77
Drawing, engineering, machine, and mechanical 235
freehand 168
Durham, site of (see back of map)

Economics, agricultural, courses 160
Economics and accounting, department, personnel, and courses 181
Education, department, personnel, and courses 185
(See also Teacher Preparation) 138
Electrical engineering curriculum 147
credit tabulation of 154, 155
department, personnel, and courses 194

PAGE
Employment for students 78
Engineering, agricultural, courses 161
Engineering experiment station 54, 148
English, department, personnel, and courses 198
Entomology, curriculum 106
credit tabulation of 110, 116
department, personnel, and courses 204
Examinations, entrance 90, 91
physical 92
Expenses, of students 76
Extension courses 157
Extension service 54

Facilities, university 56
Faculty club 67
Farm, university 61
Farm shop 240
Fees and expenses 76
Fine Arts, program of study 123
personnel and courses 205
Folk club 67
Forestry Camp 62
Forestry, curriculum 107
credit tabulation of 110, 117
department, personnel, and courses 206
Forge shop 240
Fraternities 75
French, courses 227
Freshman week 92

Geology, department, personnel, and courses 208
German, courses 229
Government, department, personnel, and courses 211
Graduate school 99
Greek, courses 230

Health service 59, 66
History, department, personnel, and courses 213
Historical sketch of university 50
Home economics, curricula 124
credit tabulation of 131
teacher preparation curriculum 140
department, personnel, and courses 219
Hood House 59
Horticulture, curriculum 108
credit tabulation of 110, 118
department, personnel, and courses 222

PAGE
Hospital, coöperative curriculum 124
credit tabulation of 129
Hotel administration, curriculum 125
credit tabulation of 133
department, personnel, and courses 225

Infantry 65, 241
Information, general 64

Lands, of university 60
Languages, department, personnel, and courses 226
Latin, courses 230
Liberal Arts, College of 121
Library, Hamilton Smith 56, 62
Loan fund 84

Marine zoölogical laboratory 61
Mathematics, department, personnel, and courses 232
Mechanical engineering, curriculum 147
credit tabulation of 154, 156
department, personnel, and courses 234
extension courses 239
Meteorology 210
Military science and tactics 64
department, personnel, and courses 240
Museum collections 62
Music, department, personnel, and courses 242

Objectives and organization of the university 52

Philosophy, courses in (see History) 218
Physics, department, personnel, and courses 251
Physical education for men, department, personnel, and courses. 245
teacher preparation curriculum 140
credit tabulation of 143
Physical education for women, department, personnel, and courses 248
teacher preparation curriculum 141
credit tabulation of 144
Political science (see Government) 211
Pottery 62, 220
Poultry husbandry, curriculum 108
credit tabulation of 110, 119
department, personnel, and courses 253
Pre-dental, program of study 123
Pre-law, program of study 123
Pre-medical, curriculum 125
credit tabulation of 135

PAGE
Pre-nursing and technician training, program of study 123
Prescribed curricula, College of Liberal Arts 124
Prizes 85
Professional degrees, College of Technology 145
Professional societies 69
Psychology, courses in (see Education) 192
Publications, student 72

Registration statistics 264
Reserve Officers Training Corps 64
Rooms for students 77

Scholarships 79
Secretarial curriculum 126
credit tabulation of 136
secretarial studies 184
Senate of the university 52
Shops 56, 235, 239
Social service, curriculum 126
credit tabulation of 157
Sociology, department, personnel, and courses 255
Sororities 75
Spanish, courses in 231
Special students 97
Staffs, university faculty and biographical list 8–48
State board of education license 141
Statistics, courses in 233
Student organizations 68
student government 68
academic, honorary, professional and departmental societies. 69
social honorary societies 71
dramatic, public speaking and musical societies 72
student publications 72
religious organizations 73
interest groups 73
social organizations, fraternities and sororities 74
Student aid (see also tuition grants and scholarships) 78
Student employment committee 78
Student loan fund 84
Summer school 157
Supervised teaching, courses in 139, 188

Teacher preparation, curricula 138
Agriculture 109, 120, 139
Liberal Arts 124, 138–144
Technology, College of 145
Theses 100
Thompson, Benjamin, founder of University of New Hampshire. 50

PAGE
Trustees 6, 52
Tuition 76
Tuition grants 79
Two year curriculum in agriculture 263

Veterinary science 164
Vocation days 65

Wood shop 239

Zoölogy, department, personnel, and courses 259

DATE DUE

DEMCO, INC. 38-2931